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THE MUNICIPAL INDEX AND ATLAS, used in connection with the current advertisements in THE AMERICAN CITY, places local officials in the most favorable position to obtain all types of available equipment and supplies from manufacturers who desire to serve municipal government departments. THE MUNICIPAL INDEX AND ATLAS (750 pages) is published annually by the AMERICAN CITY MAGAZINE CORPORATION, 470 Fourth Avenue, New York 16, N. Y.

See pp. 23, 25, 26, 28, 30, 129, 131, 133 for catalogs and publications on municipal and civic subjects

List of coming conventions on page 127. For Index to Advertisements see page 166.

BJ Bilt-on Pumps

FOR HEAVY DUTY PERFORMANCE

MOTOR AND PUMP CLOSE-COUPLED. BJ Bilt-on Pumps are compact units consisting of induction motor (drip-proof or explosion-proof) and single stage, single suction centrifugal pump. Motor and Pump are close-coupled and have a *common* shaft.

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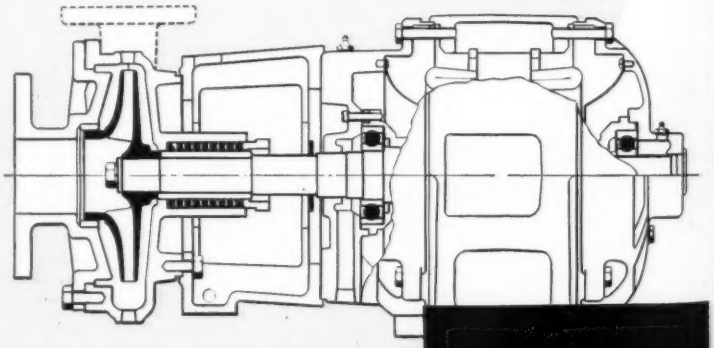

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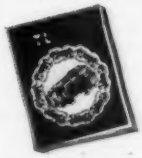


Get this new BJ Bilt-on Pump bulletin #46-2000. Write to Dept. 306, Byron Jackson Co., P.O. Box 2017, Terminal Annex, Los Angeles 54, Calif.

Our Municipal Notebook

Britain's New Planning Bill: Is It Practicable—and Just?

LAND-DEVELOPMENT controls—physical and financial—more drastic than ever enforced in a democracy are proposed in the British Government's new "Town and Country Planning Bill" introduced in Parliament last month. A brief analysis of the bill and comments on it by four leaders of British thought on town planning, municipal government, and public finance and taxation will be found on page 67 of this issue.

Novel formulas for "payment of compensation" and "collection of betterment" are features of this measure having special interest for American municipal officials and city planners. As to the practicability and justice of these proposals, THE AMERICAN CITY has serious doubts. This magazine has long looked upon land-value increments as a rational source of public revenues. But, if the bill under discussion is a sincere attempt to tap that source, we believe it blunders badly in its approach to the problem. For this reason, we commend especially the comments of A. W. Madsen, both to our American readers and to our British friends.

General Housing Bill Has Bi-partisan Support

SUPPORT for passage of the Wagner-Ellender-Taft General Housing Bill is coming from many quarters. Municipalities have a large stake in this bill, if only because of its section on urban redevelopment, which would permit the federal government to contribute up to two-thirds of the cost for acquiring and clearing blighted areas.

In an address on January 20 before the U. S. Conference of Mayors, which subsequently passed a resolution urging immediate passage of comprehensive housing legislation, Senator Robert A. Taft, recognized as one of the most influential Republican members of Congress, declared that he would join in reintroducing the measures contained in the General Housing Bill, originally prepared by a committee under his chairmanship. Emphasizing the necessity of moving forward on all phases of the housing program, Senator Taft also made a recent statement which should be of special significance to municipalities with housing authorities:

"Nothing is more important [he said], if we wish to give children in the United States an equal opportunity to make progress in life, than decent home conditions. Because of the cost of housing, it is impossible in my opinion to get rid of the slums and provide decent housing for the lowest-income families unless public housing is part of the over-all program. It should never be necessary to build public housing in an amount more than 10% of the total new construction in any year."

President Harry S. Truman has also indicated administration support of a long-range housing program similar to that contained in the General Housing Bill. In his State of the Union message to Congress, he declared:

"At a minimum, such legislation should open the way for rebuilding the blighted areas of our cities and should establish positive incentives for the investment of billions of dollars of private capital in large-scale rental housing projects. It should provide for the improvement of housing in rural areas and for the construction, over a four-year period, of half a million units of public low-rental housing. It should authorize a single peacetime federal housing agency to assure efficient use of our resources on the vast housing front."

The Wagner-Ellender-Taft bill leaves unsolved some important problems with which municipal officials will be confronted, among them the provision of temporary housing for the families who will be displaced from the areas being redeveloped. How this question is to be handled is one which should be discussed in Congress before the bill is passed. But, with such a tremendous wave of nation-wide interest and nonpartisan support, it should be evident that Congress cannot delay in approving the bill's purposes and speeding its passage.

The baby in the kitchen sink (page 75) may then hope for a decent home.

Are Your Purchasing Procedures Explicit?

PURCHASING Agent Joseph W. Nicholson of Milwaukee recently pointed out the value of having a purchasing office manual which gives explicit procedures for the receipt of merchandise. Mr. Nicholson related the following incident by way of illustration.

One Saturday afternoon during World War I, when the purchasing department was closed, two large crates weighing over 3,000 pounds were delivered to a ward yard, freight prepaid. The ward foreman, having received no instructions from the purchasing department as to methods of receiving goods and reporting them, stored these crates in the ward yard, anticipating that before long someone would ask for them. That time never came, and as the years went by the crates were moved farther back into the storeroom to make room for other materials. In 1942, twenty-four years later, they were discovered by a WPA crew working on an inventory project. This project included the examining, counting, and labeling of every piece of city-owned property. The two crates were opened and found to contain two beautiful metal prow ornaments, weighing 1,500 pounds apiece, depicting the American eagle with the words "City of Milwaukee" emblazoned on each ornament. An inquiry was sent to the Secretary of the Navy, and it later developed that these ornaments had been made for the cruiser "City of Milwaukee", which was built in an Eastern shipyard during the First World War.

One-Hundredth Anniversary

FEBRUARY 11, 1947, marks the one-hundredth anniversary of the birth of Thomas Alva Edison, whose work included much of significant influence on the functioning of city governments. THE AMERICAN CITY joins the nation in paying tribute to a great inventor.

With his first patented invention, Edison contributed to municipal work. The application for the patent on this invention, the electrical vote recorder, was signed October 11, 1868; and in 1871 he turned his attention to the typewriter, assisting Inventor Christopher L. Sholes in the construction of the first successful working model.

Following the incorporation of the Edison Electric Light Company October 24, 1878, Edison invented the first practical incandescent electric lamp. The invention was perfected October 21, 1879, when the first lamp, embodying the principles of the modern incandescent lamp, burned for more than forty hours.

The first commercial manufacture of incandescent lamps began October 1,

"We're on a real rush job"

THOSE who are waiting for new telephone service can be assured that we are doing our best to get it to them.

We're adding telephones at the rate of 300,000 a month. That's good. But the job isn't done until we've furnished service to every one who wants it and there isn't a single person on the waiting list.

Getting materials and switchboards and erecting new buildings are our toughest jobs.

It takes more than money and know-how. It takes determination. You have to make up your mind you're going to do it and then get it done somehow. We're doing it that way.

BELL TELEPHONE SYSTEM

1880, at Edison Lamp Works, Menlo Park, N. J.; and on January 12, 1882, the first commercial incandescent lighting and power station at Holborn Viaduct, London, England, was opened. September 4 of the same year, Edison commenced the operation of the first commercial central station for incandescent lighting in this country at 257 Pearl Street, New York City.

November 24, 1887, he moved to his laboratory at West Orange, N. J., and during the first four years there took out over eighty patents on improvements on the cylinder phonograph. He established a very extensive business in the manufacture and sale of phonographs and records, including dictating machines, shaveable records, and shaving machines. In 1907, he developed the universal electric motor for operating dictating machines on either alternating or direct current.

In recognition of his work, Edison was presented the Congressional Medal of Honor by Andrew W. Mellon, Secretary of the Treasury, on October 20, 1928. Three years later, October 18, 1931, he died at Llewellyn Park, West Orange, N. J., at the age of 84, leaving America and the world the richer for his contributions.

Branch Libraries in Fire Houses

THE American Library Association reports that public library facilities are being used to capacity. The housing shortage is causing an increase in the number of people who do their reading and studying in libraries. This is especially true of students who find it impossible to concentrate in the confusion of crowded living quarters. Housewives, where families have doubled up, have less work to do and can spend more time reading. Story books are asked for frequently by parents whose small children must be kept quiet because of the older people in the house. Both children and adults find it more difficult to keep track of their books.

This increase in the demand for facilities comes when it is difficult to add to existing library space because of mounting construction costs. Smaller communities interested in an approach to the problem of getting better library service established may be able to benefit from an experiment that was successfully conducted in Knoxville, Tenn., some years ago.

Several library stations were established in fire houses located in areas not served by the main or branch libraries. An initial collection of about one thousand books was usually housed in the firemen's sitting room. An assistant from the library visited the fire house once a week to issue books, but the firemen offered to allow patrons to borrow books at any time and to handle the simple charging records.

This cooperation between the Fire Department and the Department of Libraries offered the firemen an opportunity for community service; it also gave the library a standing in the neighborhood, since it was under the sponsorship of local men who were well known to both grown-ups and children.

All the original Knoxville library stations have now been moved out of the fire houses into dependent quarters, and they are served by appointed professional library staffs. However, in the opinion of Helen M. Harris, Knoxville librarian, the fire house stations functioned somewhat like a packet of yeast: they were small beginnings which stimulated a demand for more and better service that resulted in the establishment of the branch libraries.

How Can Strikes by Municipal Employes Be Avoided?

For a symposium on this important problem, see page 83 of this issue.

A Good Gesture, But—

IN GENERAL, the request by FWA Administrator Gen. Philip B. Fleming that cities postpone local public works until urgent construction such as public housing can be cared for was good. We understand that the General has received assurances of cooperation from many mayors and governors.

But any such pledge must, of course, be taken with a grain of salt. A city may be wise to forego the construction of such civic undertakings possibly as museums, zoos, and unproductive war memorials, and to use present water, sewer, street, fire-fighting, and police facilities as far as they can be made to serve.

But you can't build new housing developments without first supplying streets for access. And new houses require water, as well as sewers to carry away that water after it has been used. A city would be remiss in its duty if it did not protect this new investment with adequate fire-fighting facilities and police protection. And parks and playgrounds may be urgently needed as an antidote for the problem of juvenile delinquency.

Those mayors and governors agreed to defer those improvements that could be "safely" postponed. Let's not have that word interpreted dangerously.

Dynamic Zoning Needed for New Multi-Family Developments

THE difficulties of a Washington, D. C., cooperative organization in trying to obtain a zoning change for its proposed "balanced" community development help to illustrate the necessity for realism in zoning and planning ordinances.

In a number of instances that have come to our attention recently, carefully designed, high-class garden apartment developments with low gross densities have been disapproved by municipalities seeking to preserve property values in detached residence areas. The rejections of some of these applications seem to be ill-considered. Municipalities should bear in mind that people's needs and the conditions of community development are changing. A well-planned garden apartment development, laid out in spacious surroundings, may have much more value to a community than a subdivision consisting of small single-family residences squeezed on small lots.

This point of view was borne out in a statement by Hugh R. Pomeroy, planning director of Westchester County, N. Y., at the zoning hearing of the Washington cooperative group. He declared:

"There is nothing intelligent in sloganizing or getting horrified at the idea of 'apartment houses' in the open country. I suppose that it is almost inevitable that our eyes should turn backward to all the inadequacies of older neighborhoods with which we are all too familiar, rather than forward to communities worthy of America in the middle of the Twentieth Century. So, when we hear the term apartment house, we think of the stereotyped hulks that crowd out open space and dominate their surroundings, rather than visualizing additions to open space and amenity by the skillful variation in arrangement of dwelling types that lies at the heart of the concept of communities with an inherent vitality that carries their quality through the years. To fear this development because it proposes internal variation in dwelling types within the over-all density pattern would be on a par with disapproving it because it has streets, on the ground that streets in some communities are dirty, ugly, noisy, and dangerous."

This does not mean, of course, that Mr. Pomeroy—or THE AMERICAN CITY—recommends indiscriminate rezoning of single-family into multi-family residence districts. But it does mean that, under such safeguards as are proposed by the Bannockburn Cooperators (see page 86), a much more desirable type of subdivision layout may sometimes be had than by rigid adherence to zoning provisions which lag behind today's needs and possibilities for rational development.

2,000,000-GAL. HORTON ELEVATED TANK

serves dual purpose at Washington, D. C.

THE Horton elevated tank shown below was erected primarily to provide gravity pressure and a reserve in storage, independent of direct pumping, in a rapidly expanding area of the District of Columbia east of the Anacostia River. The tank also prevents the area which it serves from drawing too heavily, during peak demand periods, on the area adjacent to it. The capacity of the tank was determined by projecting the peak demands of the service area to relieve low service suction demands during such periods and to reduce peak power demand requirements.

This Horton spheroidal tank, one of many types we design and build for municipal service, has a fluted central column 40 ft. in diam. inside of which is a 5-ft. diam. riser. The tank itself is 106 ft. in diam. and has sixteen 4-ft. diam. outer columns. The structure is 49 ft. to bottom and has a range in head of 34 ft. 6 in.

CHICAGO BRIDGE & IRON COMPANY

Birmingham 1.....1502 North Fiftieth St.
Houston 1.....5601 Clinton Dr.
Tulsa 3.....1625 Hunt Bldg.
New York 6.....3309—165 Broadway Bldg.
Cleveland 15.....2236 Guildhall Bldg.
Los Angeles 14.....1403 Wm. Fox Bldg.
Chicago 4.....2127 McCormick Bldg.
San Francisco 11.....1233-22 Battery St. Bldg.
Philadelphia 3.....1616-1700 Walnut St. Bldg.
Atlanta 3.....2114 Healey Bldg.
Havana.....402 Abreu Bldg.
Detroit 26.....1301 Lafayette Bldg.

Plants in BIRMINGHAM, CHICAGO and GREENVILLE, PENNSYLVANIA

North Carolina's Study of Streamflow Measurements

A DAMAGING flood can occur during a dry season. In fact, during recent years North Carolina has had two such as a result of being exposed to tropical hurricanes.

For the past twenty years an analysis of stream flow records show there have been three protracted droughts of two or more years duration and two periods of floods affecting two or more years. Oddly enough, the most damaging floods, even though large, did not bring the runoff for the year to a figure above average. The August flood of 1940 came during a severe drought year. Similarly, the September flood of 1945, although it had notably high runoff, did not make the annual average outstanding. This was pointed out by E. D. Burchard, district engineer, U. S. Geological Survey, in a paper delivered before the North Carolina section of the American Water Works Association in Raleigh, N. C., recently.

Floods, because of their short duration, are soon forgotton, except by those who are the immediate sufferers. However, droughts usually are slow in coming and going, and the sustained low yield of the streams affect a wide variety of interests, causing many to suffer.

Watch Out for This Racket

DON'T let the people in your city be victimized by this water contamination racket. This is how it works. The racketeer, representing himself to be some sort of official chemist, will ask permission to test the tap water for "impurities." He draws some water from the tap and puts it into test tubes and, through some trick, produces a milky fluid. The confidence man claims that it is thus because of minerals in the water that are "ulcer producing."

This "chemist" is then followed by a confederate who solicits orders for a corrective device costing as much as several hundred dollars. The Los Angeles Department of Water and Power has reported activities of this type in their publication, *The Intake*, and has asked its employes to help track them down.

About twenty-five instances of such solicitation in the city of Los Angeles have been reported to the Sanitary Engineering Division and to the City Health Department, and complaints filed with the City Attorney's office.

What Causes Ground-Water Recession?

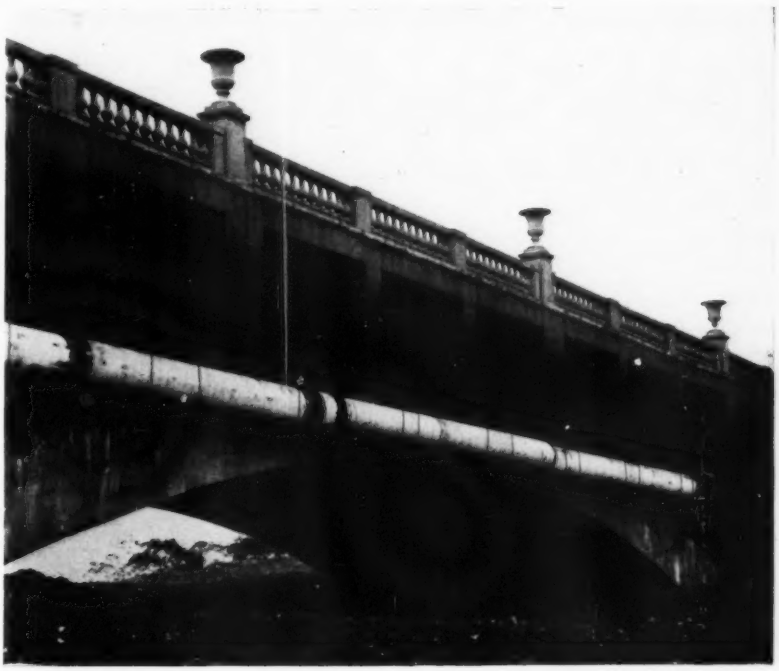
GENERALLY speaking, deforestation, land cultivation, and drainage do not cause progressive depletion of ground-water supplies over long periods. It is usually a persistent drought —or, in major industrial or irrigation areas, heavy pumping — that can be identified as the cause of ground-water recession. The conservation and development of ground-water supplies in the future will require thorough investigation of each major aquifer and effective legal control of the withdrawals from the more heavily-pumped aquifers. This opinion was expressed by Charles L. McGuinness, Associate Geologist, U. S. Geological Survey, Washington, D. C., in a paper appearing in the *Proceedings* of the American Society of Civil Engineers for September.

Broadly speaking, ground-water reservoirs or aquifers can be divided into two different types, says Mr. McGuinness. The first covers those with high rates of recharge and large perennial supplies, and the second covers those with low rates and small perennial supplies. The water-bearing limestone in the Miami area represents the former of these, and the shallow aquifer in the Elizabeth City, N. C., area (see page 115, THE AMERICAN CITY, September 1946) represents the less productive class, since its successful development required a number of small wells distributed over a large area.

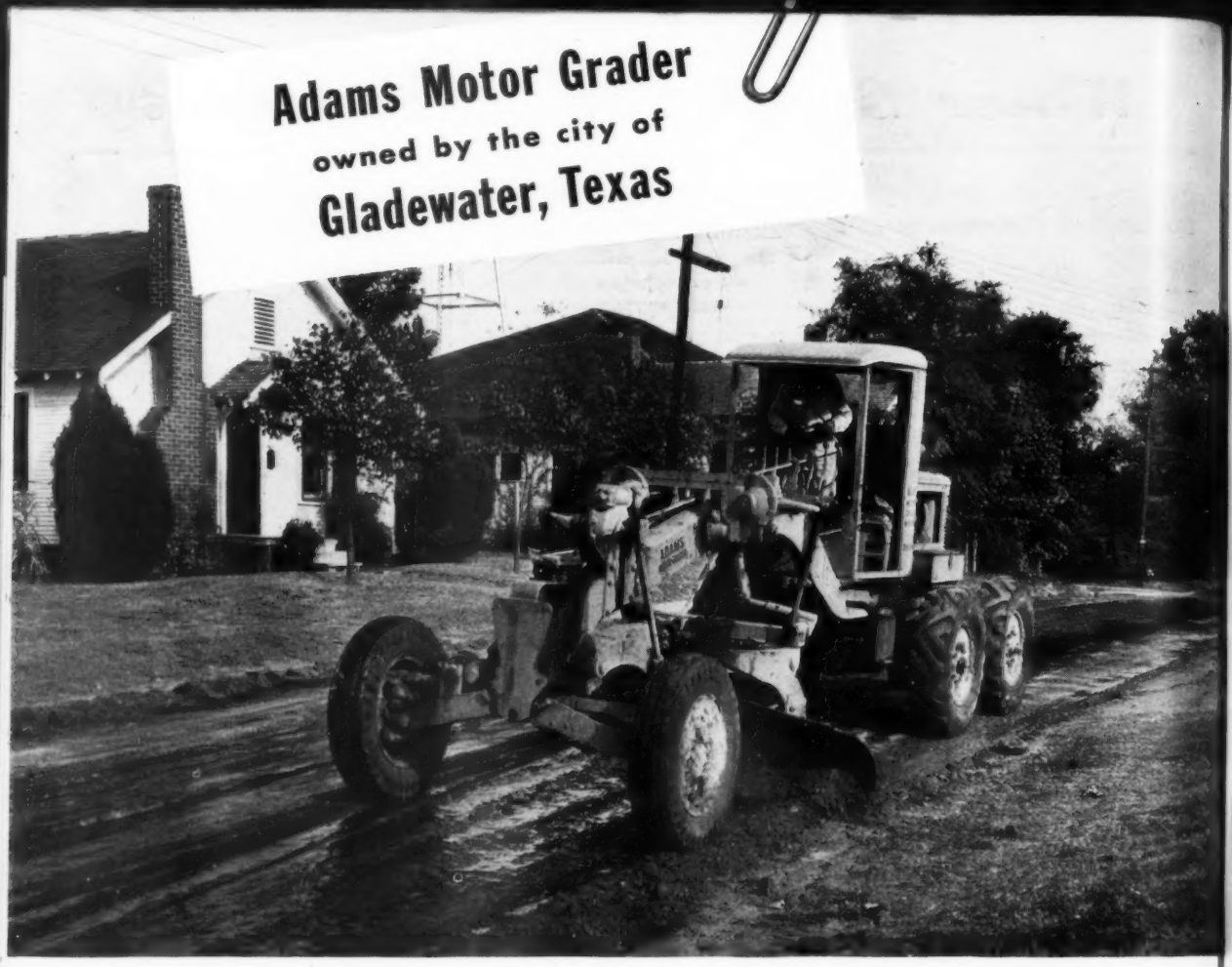
Ground waters can be conserved by artificial recharge such as is being practiced in California irrigation districts and also by the water supply serving Des Moines, Iowa (see page 88, THE AMERICAN CITY, November 1946).

Some spread the water in thin layers as is the practice in Des Moines whereas others use ditches and furrows. Only recently has the practice of artificial recharge through wells become subject to study. The principal area in which recharge through wells is practiced is western Long Island, where more than 60 mgd is returned to the ground during the summer through more than 200 recharge wells and several basins.

New Pipeline Suspended on Bridge



When Pittsburgh filled the valley spanned by the Heck's Run bridge, one of the pipelines was buried beneath about 30 feet of fill. The water department decided to replace it with a line bung on the bridge, as shown above. The pipe is a 36-inch Armco, welded with a ⅜-inch wall, and with a spun bituminous coat inside and bituminous paint outside. An expansion joint in the center relieves the stress from the steel to the concrete abutment.



The All-Around Grader

FOR YEAR-AROUND MUNICIPAL WORK

LIKE so many progressive cities, Gladewater, Texas, has discovered that an Adams Motor Grader goes a long way toward converting rough, traffic-torn streets into clean, smooth, safe avenues.

In the picture above, an Adams Motor Grader is putting the finishing touches on what once was such a street in Gladewater. As the first step on this job, the Adams Grader completely scarified the old surface. The grade was then shot with oil, after which the Adams Grader thoroughly mixed and spread the scarified material—in minimum time, at minimum expense.

Adams Motor Graders are ideal for a wide variety of municipal uses—for building and maintaining unpaved streets and alleys—for backfilling over sewers, water mains, gas pipes, etc.—for grading jobs around playgrounds, parks, municipal centers, parking areas, etc.—for leveling municipal dumps, etc.

Adams Motor Graders are made in many sizes for all types of work, ranging from lightest maintenance to heaviest construction jobs. For complete details, see your near-by Adams dealer.

J. D. ADAMS MANUFACTURING CO. • INDIANAPOLIS, INDIANA

Adams

Motor Graders
Elevating Graders
Leaning Wheel Graders

Street Cleaning & Maintenance

Moline's new trailer-mounted asphalt distributor.

Doing the Little Jobs Efficiently

SMALL-JOB portability combines with big-job efficiency out at Moline, Ill., where the street department is using a small, trailer-mounted Littleford pressure distributor to take care of those street-sealing jobs big enough to be annoying to the resident but too small to be repaired by contract.

City Engineer William M. Coopman reports that the department acquired the distributor too late in the season to be used on an organized street-sealing program, but during August and September he has been using it for dust control on unimproved streets and alleys. For this purpose he has been using a #5 road oil. By next summer he expects to use the distributor to full advantage for seal-coating such asphalt streets as require attention.

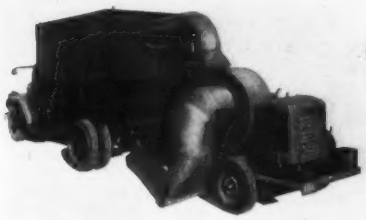
A Street Vacuum Cleaner for Leaves

ONE VOID in the public works field that for the past few years has been annoying the municipal official is the lack of a mechanical method of gathering leaves. Any operation, of course, that can do a job mechanically where it was previously performed by hand almost always means money saved; and when that hand operation means gathering light, fluffy material like leaves, the savings can be considerable.

The two suburban communities of Wauwatosa and Shorewood, Wisc., are among the latest to fill this equipment void by their own efforts (see page 88). A few years ago we ran a short, one-page story on the "Leaf-Sucker-Upper," so named by Director of Public Works J. M. Graddy, Columbus, Ga. When we visited him last summer, he showed us requests—running into the hundreds, coming from every state in the union and several foreign countries—for detailed information for building this device. Wyoming, Ohio, also has one, apparently built prior to the Columbus, Ga., unit. Montrose, Colo., uses one which, although home-made, still collects leaves twice as fast as a six-man crew. Ridgefield, N. J., successfully uses one patterned after J. M. Graddy's model.

This fall at the American Public Works Congress held at Ft. Worth, Tex., men attending the equipment round table discussion agreed that a device of this type was badly needed.

As a matter of fact, one type, shown below, is being used successfully in Franklin, Va., Pleasant Ridge, Mich., Holland, Mich., and Clarksdale, Miss. It has been reported that the device has made it possible to replace six trucks and twenty-five men with one truck, the machine, and three men. This company, the Leaf Loader Division, American Structural Steel and Tank Co., Detroit 3, Mich., has designed the machine so that it not only picks up leaves, but also will clean streets, parkways, and other areas of paper sticks and similar debris.



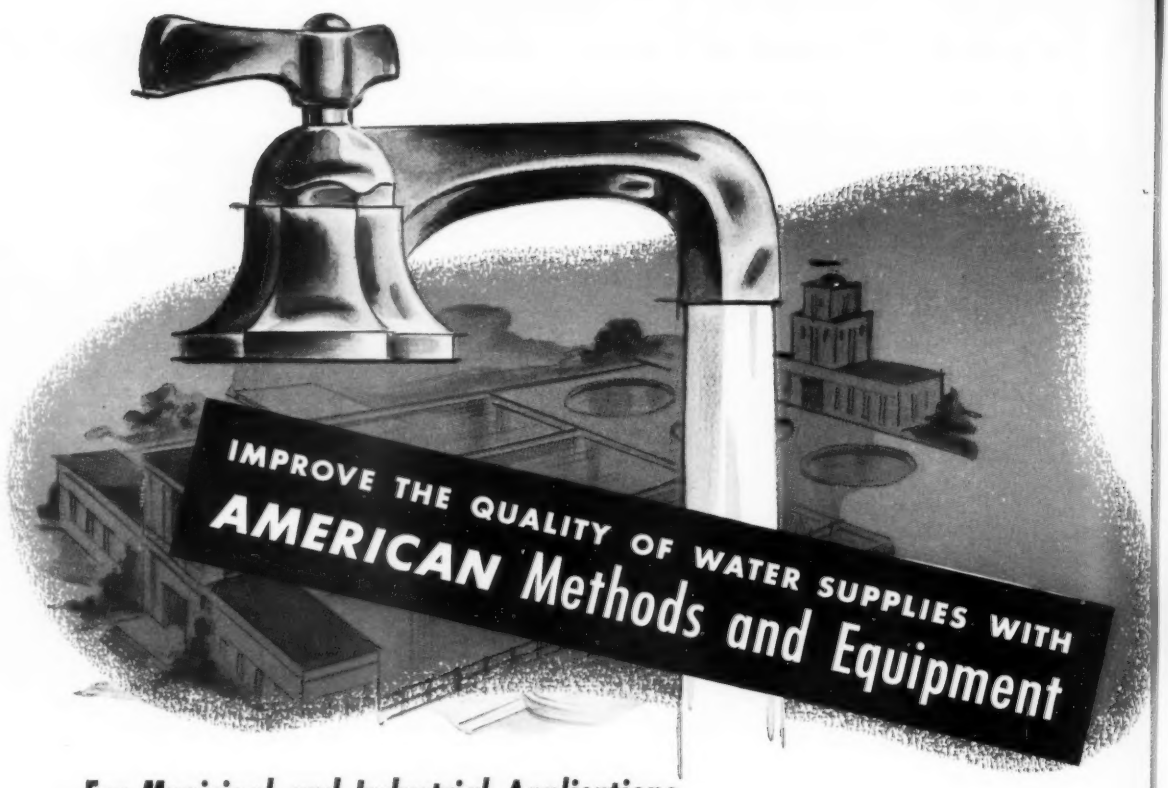
This leaf-loader is factory-built.

Livingston, Mont., Regrades Streets

TO rebuild and improve city streets in three sections of the city, Livingston, Mont., moved approximately 25,000 yards of clay and gravel to lower the present street level about 1½ feet.

Excavated material was hauled over city streets and filled in a swamp area to build a city park access road. Hauls on this work ranged from 500 to 1,200 feet one way and included some travel over pavement. Three Tournapulls, a LeTourneau Rooter and Dozer, a "Caterpillar" D8 tractor and motor grader did the work. McLaughlin, Inc., Great Falls, Mont., held the contract. A. T. Peterson, Jr., is city engineer.

One of the Tournapulls cuts down the street level prior to resurfacing.



For Municipal and Industrial Applications

Years of experience enable American Well Works to provide installation-tested methods and equipment for supplying potable and properly conditioned water to municipalities, institutions, and industries.

THE FLOCSETTLER — a combination water conditioning unit, consisting of a rapid mix zone, a gentle agitation zone, and a vertical settling tank. The floc bearing water flowing upwards through the sedimentation compartment diffuses through the downward settling slurry. This unit is effectively applied in all cases where it is desirable to use a blanket contact, vertical flow settling tank for turbidity removal, cold water softening, or removal of suspensoids from wastes. Because of its simplicity of operation, it is well suited for municipalities, institutions, camps, and industries. *Bulletin No. 256.*

THE FERROFILTER—combines the latest developments in American and Continental practice. It effectively, economically, and completely removes iron, manganese, and accompanying carbon dioxide from the water supply. Supplants the expensive coke tray aerator and sand filter combination, since the functions of both are carried out in the one Ferrofilter unit. *Bulletin No. 252.*

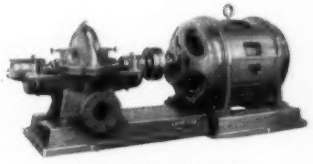
CONTACT AERATOR (Backwashable) — the ultimate in carbon dioxide removal. Continuously and efficiently removes CO_2 from solution to a greater degree than even a freshly recharged coke tray aerator. It consists of a rotary aerator which applies raw water over a shallow trickling filter bed filled with large media (crushed limestone, gravel, or hard coal). *Bulletin SAN 2029.*

MIXING EQUIPMENT—*Downflo Flocculation Unit,* mixes large volume of water at a low velocity. *Recarb Unit,* mixes CO_2 with recirculated liquor drawn from all parts of tank. *Downdraft Aerator,* dispels odors and oxidizes tastes with fine bubble aeration. *Rapid Mix Unit,* for continuous blending of coagulant with raw water. Available with aerator. *Bulletin No. 255.*

ALSO ZEOLITE SOFTENERS, VERTICAL PRESSURE FILTERS, AND SLUDGE REMOVAL EQUIPMENT FOR SEDIMENTATION BASINS.

PIONEERS IN PUMPS

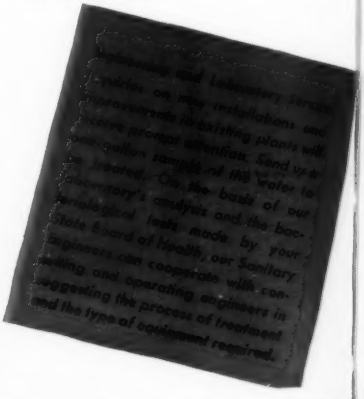
As pioneers in the invention and manufacture of water transfer and deep well pumps, American Well Works has thousands of installations throughout the world filling exacting jobs over long periods.



Horizontal Double Suction

Split case, ball bearing design. Enclosed type bronze impeller with all water passages hand finished and exterior surfaces machined. *Bulletin No. 248.*

Also Single and Two Stage Centrifugals, Axial and Mixed Flow, and Deep Well Turbine Pumps in a wide range of capacities and heads.



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Pumping, Sewage Treatment, and
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Public Safety

Man the Fire Department

MANY communities have put into operation plans for a reduction in hours of work for firemen, amounting to 20 to 30% of the previous working time, but have made no increase in the total force. This has resulted in a reduction of the number of men on duty with the individual companies, in some cases to a degree where only two or three men respond. The fire service is not primarily for the small fire. It is an emergency service and should be designed to combat the relatively infrequent fire which may endanger other buildings or affect the welfare of the community.

Many records show that cities up to 20,000 to 30,000 population which have no individual fire loss in excess of $10,000 for several years, have a fire department with only five to ten men as the total force on duty. If conditions were such that no individual fire might be expected to exceed the cost of the extra men needed for proper manning, there might be an economic justification for the failure of the city to provide sufficient funds. There are, however, in all of these cities conditions which may result in fires involving exceedingly large sums of money and loss of life. During the past half century such fires have occurred frequently and the daily news items are showing a marked upward trend in large-loss fires, sometimes involving a whole city block.

It is the concensus of the leading fire chiefs of this country that the number of men on duty with a pumper company should never be allowed to go below five; for a ladder company the minimum should be not less than six, as a lesser number cannot effectively use the longer ladders in life saving.

GEORGE W. BOOTH
Chief Engineer
National Board of Fire Underwriters
85 John Street, New York 7, N. Y.

Mobile Fire Protection At La Guardia Field

NEW YORK CITY'S La Guardia Field is protected by four fire trucks in Fire Department Unit No. 31 at the field. The largest weighs 40,000 pounds complete with 1,000 gallons of water. This Mack truck is a fog fighter throwing 69 gpm at 600 pounds pressure from a Hardie fog fire gun. In addition to a 500-gallon Ahrens-Fox pumping engine, there are two 300-gallon International and Ford trucks carrying Hardie fog equipment and also foam. Two-way radio keeps the unit in touch with the airport's control tower. One of these trucks is shown below.

Fighting Forest Fires

EQUIPMENT used by the New Jersey Forest Fire Service in combatting forest fires include a Ranger plow drawn by a Clarkair tractor and fifty tank trucks carrying small tools.

The plow, adopted in 1946, turns a 3-foot furrow around the fire, thus eliminating the necessity for natural roads or trails for backfire. Tank trucks carry from 300 to 500 gallons of water, a power-driven pump, 400 to 500 feet of ¾-inch rubber hose, and 3,000 to 5,000 feet of 1½-inch linen hose with nozzles of various sizes for use according to fire demands.

The service also uses shovels to spread sand on the fire line, fire brooms, fire rakes, axes, brush hooks, and 10-quart buckets to fill Indian pumps with clean water. These back-pack pumps are employed in nearly every fire, State Fire Warden William J. Seidel reports.

Arson Detection Course at Purdue University

FOR THE third consecutive year the annual specialized training course in arson investigation and detection will be conducted at Purdue University, Lafayette, Ind. Prof. J. L. Lingo, director of Purdue's Public Safety Institute, has announced the dates of the course as April 22-25, 1947.

This course brings together outstanding specialists from the police and fire fields for study and discussion of the arson problem. It is conducted by the Indiana Fire Service Training Schools and the Public Safety Institute of Purdue, with the cooperation of local, state, and national organizations interested in the problem of incendiary fires.

Authorities agree that the problem of set fires is becoming more serious each day. The course will serve to acquaint police and fire personnel with the practical problems incident to the detection of arson cases and kindred crimes. It will also serve to determine the responsibility of the various agencies dealing with arson and point out practical methods to use in apprehending and convicting the arsonist.

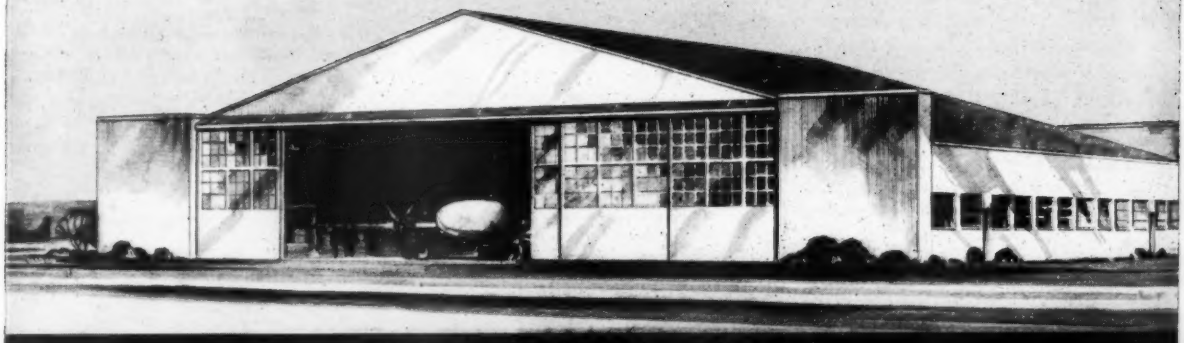
Atlantic City's Fire Alarm System

THE fire alarm system of Atlantic City, N. J., was inspected by the National Board of Fire Underwriters in September 1946 and pronounced "generally adequate and reliable and well maintained." by the Electrical Bureau under Chief Joseph S. Milligan. Equipment is manually operated, of Gamewell make.

All communications circuits in Atlantic City are underground and there

This big Mack truck, a fog fighter throwing 69 gpm at 600 pounds from a Hardie fog fire gun, is one of the four trucks which protect LaGuardia Field.

MAINTENANCE HANGARS



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are 34.1 miles of them. The 264 fire alarm boxes are of the succession type and timed to transmit alarms at about ⅓ second between strokes. Circuits are tested every four hours and test taps are sent over the system twice daily. Boxes are tested monthly. During the last year 728 alarms of fire were received—238 by box, 475 telephone, and 15 verbal.

High Cost of Accidents

TRAFFIC accidents in Lansing, Mich., between August 1, 1945, and August 1, 1946, cost those involved $34,500 a month—a 51% increase over the monthly costs paid by Lansing accident victims during the war.

According to the study recently conducted by the Lansing Safety Council and the National Conservation Bureau, direct costs to those involved totaled $414,330 for the past year, as follows: salary loss, $68,060; medical bills, $50,580; auto repair bills, $273,660; and other costs, $22,030.

The average traffic accident victim lost $170 in salary, paid $92 in doctor and hospital bills plus $26 in miscellaneous bills such as attorney fees, fines, and settlement of other parties' claims, and had a $220 auto repair bill if he owned a car.

Direct loss to business and industry was 91,260 man-hours, a 69% increase in employe man-hours over those of the war period. On the basis of the survey, it has been recommended that driver and pedestrian education be intensified.

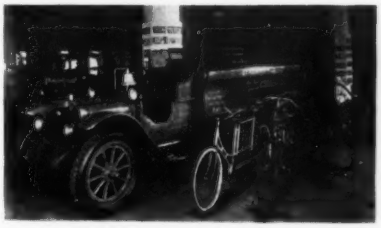
This study will be further discussed in an early issue.

The Safety Engineer's Part in Fire Prevention

ASSUMING that the Safety Engineers of the country will interest themselves in fire prevention and protection of the particular plant with which they are concerned, the next question is where to get the knowledge needed. The National Board of Fire Underwriters has, for many years, issued standards which can be obtained without cost and which cover the more commonly used protection practices. Supplementing these is a series of bulletins, totaling to date more than 200 and being supplemented each month by others which are also distributed to those interested in fire prevention.

The National Board of Fire Underwriters believes that effective control of hazards cannot always be obtained through advice and has provided a fire prevention ordinance recommended for adoption by cities and towns. Through such an ordinance, which is a valuable reference source, the members of fire departments can aid in passing along advice and knowledge to the plant operators and business executives of the community and in serious cases can force compliance with the ordinance.

Just as essential as the fire prevention ordinance which it supplements is the building code. As the result of a half-century of continuous study of the construction needs of the country and of the advances made in materials and methods, the National Board of Fire Underwriters has also prepared a recommended building code.



This White truck, now in the Thompson Auto Museum, was Cleveland's first motorized equipment in 1913.

Cleveland's First Fire Truck

ONE of the interesting pieces of the Thompson Products Auto Museum in Cleveland is the city's first motorized fire wagon — a White — which went into use in 1913 and was retired not long ago after more than thirty years of hard service. "Old No. 1" was probably the best known piece of equipment the Cleveland Fire Department ever had. For years it was stationed in the Carter and Scranton Roads sector and fought fires large and small. Originally, it afforded dramatic contrast with the horse-drawn vehicles. Later, it exemplified the long years of service which had been built into it.

Adequate Fire Stations

IN considering the adequacy of fire stations there are two main features to be examined: the location, and the size and design of the structure. George W. Booth, chief engineer of the National Board of Fire Underwriters, develops this contention as follows:

There is a general, although erroneous, belief that because many fire stations were built in the days of volunteer fire protection and horsedrawn apparatus they are not satisfactorily located and there should be a general rearrangement and a much wider spacing of stations. A study of fires in any city shows that 75% of all fires and a like percentage of fire losses occur in and around the older part of the community, in which buildings lack structural features essential to the fire safety of the occupants and the prevention of destruction of the building and contents by fire. These older sections also include higher values and greater congestion than the remainder of the community. To afford protection, the central fire stations might be relocated on more suitable streets to give better exits, but there is little need of moving any of them more than a few blocks. This is particularly true in cities of less than 200,000 population.

Ample rear or side lot area, with a hydrant available, should be provided to permit drill operations with the apparatus. Preferably, the apparatus should be driven in from the rear, either from a back street or the rear area.

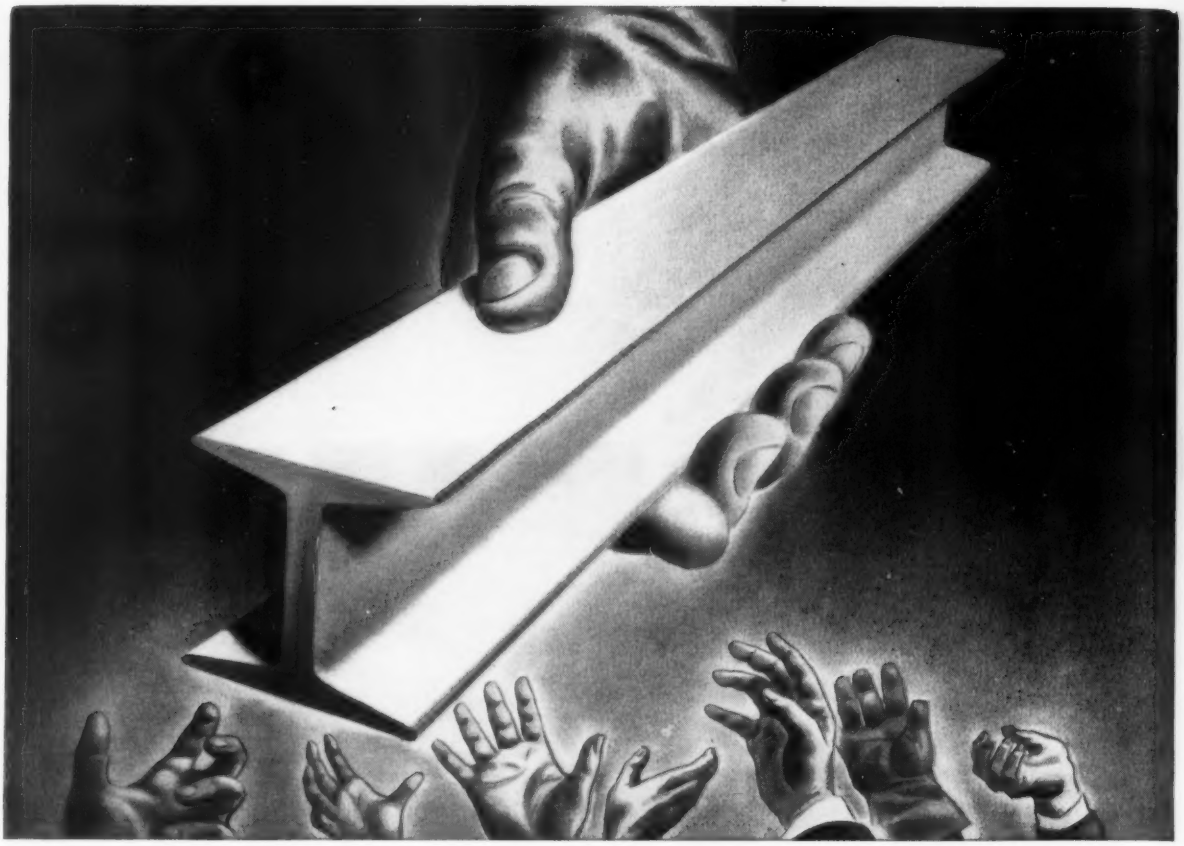
The first requisite for the building is ample room, not only for the apparatus in service but for spare apparatus. All doors should be 12 feet wide. Where two or more pieces are in service, separate doors should be provided. For this it is preferable to have a corner lot with egress on two streets.

The building for housing one combination pumping truck will require a room approximately 16 feet x 32 feet. Where a pumper and a hose wagon are both stored the room will have to be approximately 30 feet x 40 feet or 20 feet x 70 feet. Service ladder trucks require 20 feet x 50 feet and an aerial truck 20 feet x 75 feet. The ceiling height should be about 13 feet.

Many departments use a hose-drying rack. It should be 52 feet long, 3 or 4 feet wide, and slope about 3 feet; if located outside, the rack should be covered. Special heated hose drying cabinets are being used in a number of cities.

Consideration, in any new fire station, should be given to those two common features which are, in the opinion of safety engineers, serious offenders in the accident world — the spiral iron stairway and the sliding pole. There is no longer the excuse that the men had to hurry to catch the horses released by the alarm. One solution is to build one-story fire stations whenever possible or to provide two or more stairways from any upper floor.

Fire stations needs ample facilities for the health and comfort of the men. There include hot water, showers, cooking facilities, refrigeration; reading, recreation, and study rooms, and clothes driers and closet or locker space. A good yard and flowers add to the welfare of the men.



Brother, can you spare a beam?

Steel is like money. When you need it, you need it *badly*. That's why we have many steel plants to give next-door service most anywhere.

But lately it's getting so we hesitate to open the mail or answer the phone. We *know* there will be friends asking for steel—steel they need badly—and often we just are not able to fill the bill.

And here's what's causing it all

For a while it looked as though production would soon catch up with demand. Now that time seems more distant. The many things holding up top steel production have been slow to clear away. Unpredictable stoppages keep popping up, and shortages have brought other delays. You know about many of them. We've been doing our best, but for reasons beyond our control, we're still getting orders we can't fill.

But remember this:

One of these years the steel situation is going to change for the better. When that happens our plants will be among the first to stock products now hard to get and we'll burn up the roads rushing your steel to you. In preparation for that day, we're improving and expanding facilities, to protect the quality of Ryerson steel and ship it to you faster.

We are even now building a new plant and adding extensively to equipment at 11 others.

Meanwhile, the steel you need or a practical alternate may be in stock. So contact the nearest Ryerson plant with the full knowledge that we will do everything in our power to work with you.

JOSEPH T. RYERSON & SON, INC., Steel-Service Plants at: New York, Boston, Philadelphia, Detroit, Cincinnati, Cleveland, Pittsburgh, Buffalo, Chicago, Milwaukee, St. Louis, Los Angeles.

RYERSON STEEL

Proposed improvement to LaGuardia airport, including the new fill and runway extension. The sinking portion, outlined in black, may be rehabilitated by a system of sand drains that will stabilize the fill.

New York Receives Proposal for Airport Development

THE Port of New York Authority has recently prepared an offer to the City of New York covering the lease and operation of the city's airports. This offer covered four main points:

1. Enlarge and modernize LaGuardia airport.
2. Complete the construction of Idlewild airport.
3. Finance the program of capital improvements required for both airports.
4. Put both on a self-supporting basis under Port Authority operation and management.

The construction program at Idlewild and LaGuardia airports, which the Port Authority is prepared to carry out under the terms of this lease over the next five years, will require an expenditure by the Authority of $191,000,000, of which more than 60% will be spent on runways, terminal and service buildings, utilities, air rights, and equipment. During the term of the lease, title to the airports will remain vested in the City of New York. Under the proposed rental formula, the lease will have a maximum term of ninety-nine years. At the end of the term the properties will revert to the city.

Significant in the offer is the proposal that, contrary to recommendations made to the city by its consultants, LaGuardia field be left in service while a program of stabilizing the runways is instituted. The Authority's engineers propose that the field be kept in operation by filling the southerly half of Bowery Bay which lies immediately west of the present runways and north of the present international terminal. As soon as this fill is completed and the runway extended, the faulty easterly end of the field can be closed off, leaving three runways actively in operation.

The proposed stabilizing program which is suggested for the sinking LaGuardia runways follows a process that has been used with varying degrees of success on the Pacific Coast. It consists of driving a series of casings filled with sand down into the subsurface, and of withdrawing the casings to leave a series of sand drains from the subsurface to the surface through which the water could rise and be taken out as additional weight is placed upon the surface. It is then proposed to place a fill as high as 24 feet to compact the underlying silt and force the water up and out, thus lowering the moisture content in the silt and obtaining a stable foundation.

1946 Biggest Civil Aviation Year

AMERICAN civil aviation had the biggest year in its history, according to T. P. Wright, Administrator of Civil Aeronautics.

"All phases of civil aviation showed growth even beyond our predictions," Mr. Wright said. "The tremendous spurt in personal flying and flight training is reflected in the fact that the number of registered aircraft more than doubled, from 37,789 at the end of 1945 to 85,000 today, and the number of certificated pilots (private, commercial, and transport) increased from 296,895 to 400,000. Student pilot certificates issued during 1946 numbered 170,000 as against 77,188 in 1945.

"Primarily to meet the demands for small planes, civic aircraft production jumped from 2,047 planes in 1945 to 35,000 in 1946. Surplus military aircraft accounted for the balance of the increase in registrations.

Eight Hundred Airport Projects for 1947

APPROXIMATELY eight hundred airport projects will be built in 1947 at an estimated cost of $33,899,265 to the Federal Government, with the local or state government sponsors providing an additional $37,692,600, according to an announcement by the Civil Aeronautics Administration, Washington, D. C. The proposed federal expenditures include $26,676,466 from amounts apportioned among the states on the basis of their area and population as provided in the Federal Airport Act, plus $6,690,849 assigned to thirty states from a discretionary fund and $531,950 from funds apportioned to Alaska, Hawaii, and Puerto Rico.

The program covers only smaller airports designated by CAA as Class I, II, and III, since the Act requires CAA to submit to Congress a list of proposed larger airports at least two months in advance of the fiscal year in which they are to receive funds. It was impossible to comply with this requirement for the current fiscal year, since the Act had not become a law two months before July 1, 1946. In view of these legislative provisions, a proportionately larger part of the funds that will be made available by Congress for use in 1948 will be spent on Class IV and larger airports to balance the program.

The 1947 program calls for construction of 232 new Class I airports, suitable for personal flying; 109 Class II airports, suitable both for personal flying and local commercial service; 44 new Class III airports, suitable for smaller transport planes, and three new seaplane bases. Projects for improvement of certain existing airports call for 82 Class I, 177 Class II, and 153 Class III fields.

ONE TYPE OF BODY IS NOT ENOUGH-

Pictured is the Apartment-type body in three stages of operation. Above, on ground. Below, in carrying position. Right, dumping.

-FOR EFFICIENT TRASH & RUBBISH COLLECTION

If rubbish collection is a "Headache" in your community, if you use the old fashioned, unsanitary open truck method of collection, it will pay you to investigate the Dempster-Dumpster System. Here's how it works. A large number of bodies, each designed for the specific needs of the user, are placed at needed points for community projects, schools, apartments, factories and stores. They are picked up loaded, at regular intervals in a few seconds by truck hoisting unit for hauling and dumping. It's as simple as that. One man can handle the entire operation. It eliminates costly injuries to personnel, and unsanitary litter in your city's streets. The Dempster-Dumpster system is flexible, and adaptable to the smallest or largest community. Equipment investment and maintenance is at a minimum and will easily fit into your municipal budget.

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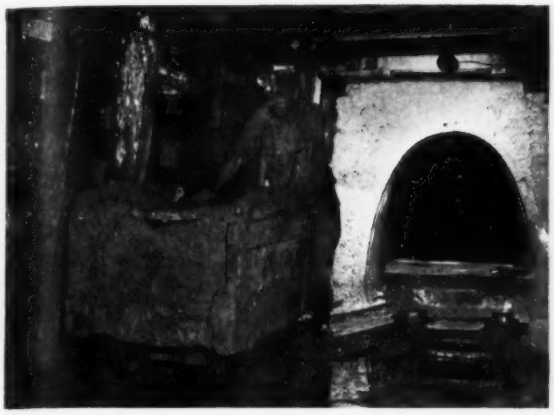


Foreman Melvin Brown (above) pushes a load of dirt tunneled out for the new storm sewer. Right: The tipple at the top of the shaft lifts out the dirt.

Des Moines Builds Storm Sewer Despite Handicaps

BACK IN 1939 City Engineer John Tippee thought that he had a fair chance of completing an 8,000-foot storm sewer designed to serve a section of the city where storms had a habit of flooding the streets and leaving a layer of debris and mud on the roadway. The project was nicely under way, with a crew of 150 W.P.A. workmen, when his source of labor faded from the scene.

The city knew how badly it needed this project. It was not only relieving a bad storm-sewer situation, but it was also bringing storm-sewer service to a section that heretofore had been forced to rely on the unsatisfactory combined-sewer arrangement. John Tippee consequently received orders to keep the project alive even with a reduced crew.

The crew he has had to work with is small in contrast to the 150 of W.P.A. days, and varies between nine and ten men. However, these men have become skilled in pushing the precast parabolic sewer section a consistent 5 or 6 feet each day. The city builds the sections in its own yards, casting floor sections 8 inches wide and 5 inches thick. The wall sections, built in halves and keyed at the top with steel hooks, are 4 inches wide and 5 inches thick, and rest in the grooves built into the floor pieces. Together they form an arched conduit 50 inches high and 48 inches wide. After the floor is laid, a 2-inch concrete floor is poured on it to provide a smooth surfaceway for the water. Wide joints in the wall also are mortared tightly closed.

All of this was tunnel work, from 30 to 80 feet below street level. Tunneling is especially desirable when all other street utilities such as paving, curbing, sidewalks, sanitary sewers, water mains, and gas mains are all in place, and a large storm sewer is needed.

City Engineer Tippee estimates that the work will be completed in another year. Already much of the sewer is in operation.

Federal Legislation Still Needed

SANITARY engineers and conservationists should settle their differences and agree on a suitable federal law to control stream pollution, said Professor Don E. Bloodgood of the Purdue University School of Engineering, before the American Society of Civil Engineers at its annual meeting held in New York recently.

In spite of the failure of Congress to pass any of the nearly 100 bills which have been introduced in Congress during the last fifty years, a federal law is still needed to coordinate the activities of state stream pollution control units. If both the conservationists and the public health officials do not lend their mutual support to some type of federal legislation, industry, which has been cooperative and willing to assist in ridding streams of pollution with its attendant menace to downstream water supplies, will lose interest.

Professor Bloodgood pointed out that the main reason for failure of any of the bills to pass has been that most of them provided for an extension of federal control and interfered with certain states' rights which the states wish to guard.

In addition to federal legislation which can serve the citizens of the country to the greatest extent if it coordinates the activities of the state stream pollution control units, Professor Bloodgood recommended:

1. State legislation authorizing boards with broad powers to establish necessary rules and regulations which must change with the development of the times.

2. Well-written, reasonable laws on stream pollution, which, he assured his listeners, would not be objected to by industry.

3. Legislation providing for necessary studies which will bring about development of suitable and improved industrial waste disposal methods.

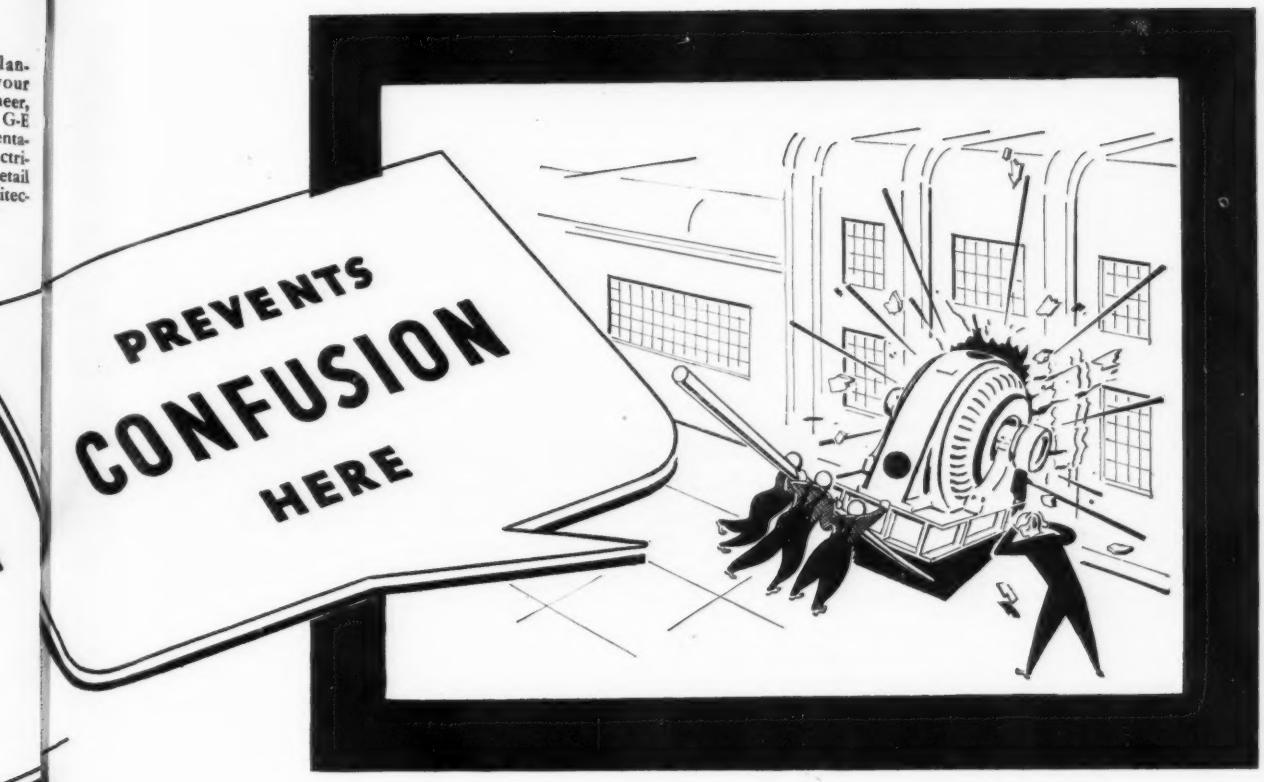
Co-operative planning between your consulting engineer, architect, and a G-E technical representative results in electrical plans that dovetail closely with architectural plans.

G-E PUMP MOTORS possess many *extra protection* features that contribute to continuous, low-cost service without undue maintenance. A wide range of ratings is available in synchronous or induction types, solid or hollow-shaft construction.

G-E CABINETROL the packaged motor control equipment, saves you valuable floor space. Often you can make a unit part of a wall. Cabinetrol is less costly to install than a made-up assortment of controls.

G-E LOAD-CENTER UNIT SUBSTATIONS not only perform well — they look well, too. You can select factory-assembled units with either Pyranol or dry-type transformers, 100 to 2000 kva. Completely metal enclosed for operators' and visitors' safety.

G-E WIRE AND CABLE meets all the service conditions of water and sewage plants. Gas-filled, varnished-cambric, interlocked-armor, and Flamenol types are available for most power distribution and control purposes.



. . . and gives you a "stay-young" plant at less cost!

TO YOU who are planning to build a new water or sewage plant or improve an old one, General Electric extends this invitation:

In the interest of co-ordination between the architectural, electrical, and mechanical phases of plant construction, ask a G-E technical representative to "sit in" on your planning conferences.

But, most important, do it NOW—when your thinking is still in its early stages and the latest and best ideas in water or sewage plant electrification can all get a fair hearing.

We believe you'll benefit a great deal in the long run. Your electrical equipment will be "built into" your plant instead of being "shoehorned in." Walls won't have to be ripped out and ceilings lifted to make room for motors and controls. You avoid the delay, waste, and dissatisfaction that "patchwork" electrical planning brings.

Naturally, you'll want the best advice and recommendations on your electrical problems. For only in this way can you avoid the risk of early obsolescence in your plant. G-E technicians are well qualified to help you. They are backed up by more than 35 years experience in designing, building, and applying completely co-ordinated electrical equipment for water and sewage plants. They offer you sound application of the most up-to-date ideas in plant electrification . . . factory-assembled unit substations, metal-clad switchgear, Cabinetrol, and gas-filled cable.

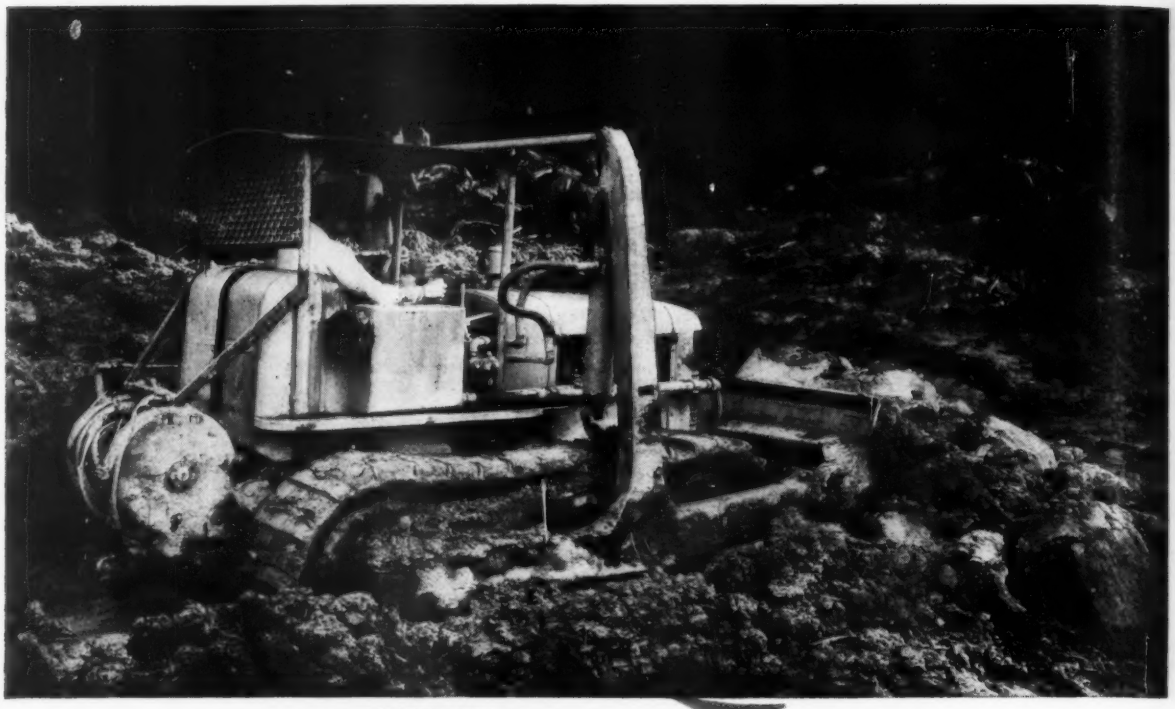
Designing your new water or sewage plant is a job we couldn't and wouldn't undertake. Moreover, we do not suggest you regard your plant as merely a housing for electrical equipment. But we do think that the electrical phase of your planning should be considered *now* when plans are still being formed. *Your plant will be sure to keep its "youthful looks" longer. Apparatus Dept., General Electric Co., Schenectady 5, New York.*

HAVE YOU SEEN
"CLEAN WATERS"?

This full-color motion picture can help you stimulate action by community leaders to improve sewage treatment in your locality. It's part of G.E.'s long-range "More Power To America" program. Check with your local G-E office.

GENERAL ELECTRIC

Co-ordinated
WATER AND SEWAGE
PLANT ELECTRIFICATION



JOBS LIKE THIS...

prove the value of the lubricant that Seals out Dirt and Moisture

GOODBYE bearings if that mud ever works its way into them! Put *Texaco Marfak* into a bearing and here's what happens –

Marfak stays where you put it. It doesn't squeeze out when the load is heavy, doesn't jar out when the going is rough. *Marfak holds together.* It clings to the bearing – guards it with a persistent lubricating barrier against dirt and moisture. It protects parts better, longer, with fewer applications.

In wheel bearings, use *Texaco Marfak Heavy Duty.* Here the secret of long-lasting protection is *Marfak Heavy Duty's* ability to form a fluid lubricating film inside the bearing while retaining its original consistency at the outer edges – thus sealing itself in, sealing out dirt and moisture.

Best testimonial to Marfak effectiveness is this fact: *More than 250 million pounds of Marfak have been used to date!*

Use the Texaco Simplified Lubrication Plan for contractors' equipment. For information, call the nearest of the more than 2300 Texaco distributing plants in the 48 States, or write:

The Texas Company, 135 East 42nd Street, New York 17, N. Y.

GET FULL ENGINE POWER

Your heavy-duty gasoline and high-speed Diesel engines will run more efficiently and deliver more power when lubricated with oil that keeps them clean — *Texaco Ursa Oil X***. Made especially for this service, *Ursa Oil X*** is fully detergent, dispersive, and has high resistance to oxidation. It keeps rings free, assuring better compression and combustion — great power and fuel economy. It protects bearings from corrosion, greatly reduces engine wear and maintenance costs.

TEXACO REG. T.M.

TEXACO Lubricants and Fuels

FOR ALL CONTRACTORS' EQUIPMENT

Tune in . . . TEXACO STAR THEATRE presents the NEW EDDIE BRACKEN SHOW every Sunday night. METROPOLITAN OPERA broadcasts every Saturday afternoon.

Stop—Check and Mail

Please check over the list of interesting free catalogs on this and following pages. To obtain the literature you want, write direct to the manufacturers, or circle the indentifying numbers on this coupon and mail it to The American City Magazine, 470 Fourth Ave., New York 16. We will see that catalogs are sent to you without expense or obligation.

1/47

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Name ..... Position .....

Address .....

Var-I-Feeder for Chemical Distribution

406. Ideal for water works, sewage plants, pools, and dairies, the Var-I-Feeder gives accurate dosage of chemicals. The percentage of chemical may be changed without interruption of the process, and multiple feeding is obtainable with the Add-A-Feeder. For additional information about the manufacturing details that make these two machines the precise and easy-handling mechanisms that they are, write for Bulletin VARI on the Var-I-Feeder and Bulletin 91 on the Add-A-Feeder to the Chemical Feeders Division, Morse Boulger Destructor Co., Room 1700F, 205 East 42 St., New York 17, N. Y.

Full-View Operation on Tractor Shovels Increases Efficiency

407. The Frank G. Hough Co., has a line of tractor shovels for any type or size of construction, and full information about the particular shovel that will best serve your purpose. Whether it is street repairs or airport maintenance, gasoline- or diesel-powered equipment that you are interested in, write to The Frank G. Hough Co., 710 Sunnyside Ave., Libertyville, Ill., for complete information about its full-view operational shovels.

Efficient Crossing Signals

408. Many accidents are due to inefficient railroad-highway crossing signals. The Model 10 signals, which give automatic protection at a minimum first and operating cost, can do much to establish your city's safety record. Write to the Western Railroad Supply Co., 2406-2436 South Ashland Ave., Chicago 8, Ill., for their Bulletin G136-AC-1.

Alternator Keeps Car Batteries Charged

409. An increasing number of municipal vehicles besides police and fire cars are being equipped with radios. This calls for extra power. Excellent for this purpose is the Leece-Neville generating system or alternator, which supplies sufficient power for both battery charging and for operating the phone equipment. Design features are compactness, light weight, and few parts. For details write The Leece-Neville Co., Cleveland 14, Ohio.

Avoid Trenching in Laying Pipe

410. Would you like to reduce pipe laying costs? Giant Mfg. Co., Council Bluffs, Iowa, will send you a booklet showing how the Giant pipe pusher pushes pipe through the ground and avoids the heavy expensive involved in trenching.

Aerial Ladders for Street Lights

411. Street lighting maintenance and other aerial work require specialized equipment for most efficient work. The American Coach and Body Co., 9503 Woodland Ave., Cleveland 4, Ohio, will send you information about your particular requirements as well as a bulletin describing their equipment. This company manufactures the revolving aerial ladder, which may be mounted on your own truck body; the tower lift, and the Seagrave—an aerial platform that reaches a height of 22 feet and is particularly useful when more than one man is at work.

Automatic Cashier for Parking Meters

412. The Brandt Automatic Cashier Company presents that boon to accuracy, the automatic coin sorters, counters, and packagers. Particularly valuable in departments dealing with parking meters, the machines come in two styles: one sorts and counts mixed coins; the second counts and packages coins already sorted manually. Write to Brandt Automatic Cashier Co., Watertown, Wis., for information on these machines.

Learn About These Water Meters

413. These water meters will give you accurate and dependable service, states the Hersey Manufacturing Co., South Boston, Mass. Write for literature and find out how the meters will give you accurate registration, long service, and satisfactory performance.

Wire Refuse Baskets Help Keep Your Streets Clean

414. A modern addition to sanitary collection of park and refuse and street litter is wire street and park baskets. Less expensive and more attractive than the solid metal refuse cans, the wire baskets manufactured by the Norwich Wire Works come in a variety of sizes, depths, and weights. This company also produces a wire rubbish burner with cover. For illustrated folder, write to the Norwich Wire Works, Inc., Norwich, N. Y.

Learn How These Diesel-Powered Graders Work

415. Again in production for civilian use after World War II, the Caterpillar diesel No. 12 motor grader is featured in a new folder. The publication tells the full range of blade positions that the grader can obtain. It also mentions the ease with which the blade can be offset and tells of the wide variety of attachments that further increase the machine's usefulness. Write the Caterpillar Tractor Co., Peoria 8, Ill., requesting Form 9354.

Fast Power Mowers

416. The Whirlwind lawn mower employs a rotary scythe suction lift that enables this machine to give varied performance: close-trimming, path as well as lawn mowing and sweeping, and the mulchification of the clipped grass. Write for additional details to the Whirlwind Lawn Mower Corp., Dept. C1-147, 730 W. Virginia St., Milwaukee, Wis.

New Trencher Minimizes Hand Digging

417. Here is a trencher that is ideal for city construction work because of its ability to sidestep obstructions as close as 10 inches to the trench being made. The Parsons 221 Trenchliner practically eliminates hand-digging. Its telescoping ladder boom digs above or below pipes, rides smoothly on large rollers. Write to the Parsons Company, Newton, Iowa, for full particulars.

Stripe Streets Quickly

418. Here is a pamphlet that tells how to stripe roads and streets for safety lanes quickly and easily. Write Meili-Blumberg Co., Box AC-12, New Holstein, Wis., for bulletin #121 on the Meili-Blumberg marker. This machine, available either hand-propelled or self-propelled, handles any type of striping and is quickly convertible to an all-purpose paint sprayer.

Do You Need Portable Power Units?

419. Industrial Power Division, International Harvester Co., 180 N. Michigan Ave., Chicago 1, Ill., is anxious to assist you in selecting power units, tractors, and matched equipment that will solve your power problems. One city is using an International power unit to operate a hammer mill which converts sewage sludge into soil-treating material. Have you a similar situation where these power units might be used?

Non-Spill Refuse Collection Bodies

420. An entirely enclosed truck body plus a bucket cover to prevent spilling of refuse when the bucket carries the refuse to the body of the compactor are the two features which reduce to a minimum the possibility of insanitary dissemination of refuse during its collection. The body of the truck may be divided, when desirable, to collect two types of refuse simultaneously and yet keep them separate. For full details, write to the Leach Co., Oshkosh, Wis.

(*Continued on page* 25)

From one end of the world to the other, you'll find Gar Wood Hoists and Dump Bodies in action. The reason? They're designed, engineered, and built to do specific jobs, *no matter how tough*. Hydraulically operated, with simple controls... they dump *cleanly*, *quickly*, and *easily*... make it possible to get to the next job faster.

No matter what kind of material you work with... sand, gravel, rock, coal, or construction materials... there's a Gar Wood Hoist and Dump Body to make the job easier... help you make money, faster.

Gar Wood Hoists and Dump Bodies have been, and are constantly being proven all over the world on the toughest jobs. For *your* next job, specify Gar Wood.

ROAD MACHINERY
HEATING UNITS • MOTOR BOATS
WINCHES AND CRANES

GAR WOOD
GW
TRADE MARK
INDUSTRIES

Stop—Check and Mail

Use Coupon on Page 23

Reduce Motor Accidents

421. Reflectorized signs with Scotchlite legend strips have long-range legibility that greatly decreases the possibility of motor accidents in your city. The Hunt Co. also will make to order street-name and other types of signs in various ornamental patterns. A pistol-grip light that throws a beam over a quarter of a mile and a portable electric megaphone will be of invaluable aid during parades, civic functions, or disasters. Write to the Hunt Co., 3700 West McNichols Rd., Detroit 21, Mich., for a booklet.

Curb Snow Banks Cost Money

422. Merely shoveling snow from roadways to the curb produces a dangerously narrowed path, and only postpones the necessity of its eventual removal. The Klauer Mfg. Co., Dubuque, Iowa, will send you literature on its Snogo machine, which removes snow instead of just moving it.

Clamp Those Leaky Pipes

423. To help you to be prepared to meet pipe leak emergencies, Stauffer Mfg. Co., 8424 Otis St., South Gate, Calif., will send you some valuable literature on its Superior pipe clamp. Consisting of a non-corrosive copper or duronze strap with special manganese bronze lugs fastened at both ends, it is said to be especially light but will withstand pressures of 400 pounds per square inch.

Reduce Ice Accidents

424. The Seaman Mixer performs several services that reduces the danger of iced surfaces, or facilitates removal. Icy ruts created by traffic are eliminated by grinding of the ice banks down to the rut level. Ice surfaces may be either pulverized or fragmented by this machine, or merely roughened so that traction-increasing material may more effectively be applied. These services are also highly useful on airfield runways. Write to Seaman Motors, Inc., 305 North 25 St., Milwaukee 3, Wis., for complete information.

Have You a Tank Maintenance Problem?

425. If you are anxious to preserve steel elevated water tanks in your municipality, you will want to have information from the Universal Construction Co., 1158 West 34 St., Indianapolis 8, Ind., on what its paint service will do. This company specializes in painting and cleaning to fight corrosion in steel tanks.

Children Don't Damage This Steel Playground Apparatus

426. The EverWear Manufacturing Co., Springfield, Ohio, has taken advantage of new processes and in catalog 38 introduces its improved line of steel playground apparatus incorporating new forms, safety features, details, and a new simplicity of assembly and operation. This catalog illustrates and discusses apparatus for a well-equipped playground; slides, climbs, see-saw teeter unit outfits, merry-go-rounds, new whirling climb, giant strides, ladder handles, swings, bicycle racks, and horizontal ladders and bars.

Coin Counters for Parking Meters

427. Mechanical coin sorters and counters eliminate hundreds of hours of tedious labor, yet cost comparatively little. These mechanical devices are particularly valuable in cities where parking meters are employed. For additional details about their absolute accuracy and usefulness, write the Universal Business Equipment Co., 537 S. Dearborn St., Chicago 5, Ill.

Sewage Plant without Nuisance

428. Your city's entire sewage plant can be housed in an attractive building right in the middle of town, with the use of Eimco sewage filters. These filters eliminate the necessity of dedicating thousands of square feet to sludge-drying beds. Economical and efficient, Eimco equipment is the modern sewage treatment method. For additional information, write to The Eimco Corporation, Salt Lake City 8, Utah.

Precision Parking Meters

429. The Dual Parking Meter Co., Milford Bldg., Canton 2, Ohio, will send you a concise booklet, "Metered Parking," upon request. Dual automatic meters are weatherproof and tamper-proof, and the low maintenance requirements are an added economy to this precision-manufactured meter.

Diesel-Powered Engines

430. The investment in a diesel engine is a safe one if you select an engine that will give you long service, free from a breakdown. Write to the Superior Engines Division of the National Supply Co., Springfield, Ohio, for information about its Superior Diesel.

How to Solve Hard Water Problems

431. If your community has a hard water problem, you can receive some valuable information and literature from The Permutit Co., Dept. A-12, 330 West 42 St., New York 18, N. Y. The Permutit Spaulding precipitator removes hardness, dirt, and color from the water by the sludge blanket process. Learn from the company the many savings and advantages this equipment can offer you.

Tree-Trimming Equipment

432. If your municipality prizes its trees and shrubs, you will be interested in Catalog No. 28 from the Bartlett Manufacturing Co., 3003 East Grand Boulevard, Detroit 2, Mich., on its tree-trimming equipment. This 22-page booklet lists equipment that can be used for the proper pruning of trees for healthier foliage and long life.

Transformer Demonstration Chart

433. To show how banked secondary transformers operate under overload, a new demonstration chart has been introduced by Westinghouse Electric Corp., P. O. Box 868, Pittsburgh 30, Pa. Transformer operation under various system conditions is indicated by means of a disc which turns to show operation of bimetals and signal lights as the load on the transformer increases, opening of contacts, and darkened houses when the fault or excessive overload is sectionalized. On its reverse side, the chart discusses the new advantages CSPB transformers bring to conventional banked secondary systems. Ask for Demonstration Chart (SA-900).

Fencing To Suit Any Purpose

434. If you have a municipal building, plant, park, playground, or pool that needs more adequate protection, you will be anxious to have a copy of *Your Fence*, being offered by Cyclone Fence Division, American Steel & Wire Co., Waukegan, Ill. This booklet gives full facts and specifications on the different types of fence and its suitability in certain spots. It will also show you such benefits of Cyclone fencing as posts that stay in line, gates that do not drag, fencing that does not sag, and other outstanding features of design, construction, and installation.

Locate Underground Leaks by Sound

435. The Geophone, manufactured by the Globe Phone Mfg. Corp., Dept. H., Reading, Mass., eliminates digging for the location of leaks. Place the geophones on the ground, and the sound of the leak is transmitted to the earphone. This device saves costly paving and is of particular value to municipal water works plants. Write for detailed data.

Altitude Valves

436. A descriptive catalog is available from the Golden Anderson Valve Specialty Co., Pittsburgh 22, Pa., on its single-acting differential altitude valves. A needle valve control instantly regulates the speed of operation to the existing pressure condition.

Snow Removal

437. The Baker snow plow can be attached to either truck or tractor, but whichever you use, the Baker gives you good performance. Hydraulically controlled, with sectional tripping blades correctly curvatured, these plows are designed by specialists. Write to the Baker Mfg. Co., Springfield, Ill, for consultation on your snow removal requirements.

Clamshell Buckets of All-Welded Construction

438. A new eight-page booklet in color just published by the C. S. Johnson Co., Kochring Subsidiary Champaign, Ill., lists advantages of the modern all-welded construction which is being utilized to increase bucket strength, to improve digging balance, and to step up bucket pay-loads. Photographs and drawings illustrate these and other design advantages which this type of construction makes possible. Complete specifications for all three types of the Johnson all-welded clamshell bucket—general purpose, wide-rehandling, and heavy-duty digging—are included.

Steel Sheeting

439. If steel sheeting finds many uses around your municipality, you will want information from the Armco Drainage & Metal Products, Inc., and Associated Companies, 2135 Curtis St., Middletown, Ohio, on Armco sheeting. Outstanding features of this sheeting include the following: (1) it is corrugated to assure ample strength with light weight; (2) its light weight and small displacement areas simplify driving; (3) the sections butt together or are held securely in place by interlocking joints which provide the right alignment and water-tightness; and (4) the sheeting is nestable and requires comparatively little space for shipment and storage.

Snow Loader Removes 15 Cubic Yards Per Minute

440. The Haiss snow loader automatically and continuously digs and conveys snow from the streets of your city regardless of how frozen the snow may be. Write to the George Haiss Manufacturing Co., 140 St. & Park Ave., New York 51, N. Y., for data on this economically rapid machine.

Expansion Joints

441. The expansion joint fillers made from cork, asphalt, and a combination of bitumen and cork are a necessity in the prevention of undue contraction in bridge, tunnel, dam, and other types of constructions, if you want to avoid unnecessary deterioration and consequent repair work. Write to the Servicised Products Corp., 6051 West 65 St., Chicago 38, Ill., for additional data about these fillers and the self-expanding cork joint.

FOR SPEEDY UNDERGROUND PIPING INSTALLATIONS . . . Greenlee Pusher

Installing 25 feet of 4-inch drain pipe under both a railroad and a paved street could be a mighty tough job as you well know. But, as shown above, the operation was a simple one for The Texas and Pacific Railway Company . . . they used a GREENLEE Hydraulic Pipe Pusher!

In studying labor and timesavings on a typical job, this company estimates that the GREENLEE can reduce a $105 labor cost to around $18. Also it saves on excavating, tearing up, and subsequent replacement of pavement and lawns.

With a GREENLEE Pusher *one man* pushes pipe through the ground *easily and quickly* . . . under streets, sidewalks, lawns, flooring, tracks and other obstacles. Often pays for itself on the first few jobs. Get complete facts now on how this timesaving equipment can help you install pipe faster, easier, better . . . and at greatly reduced cost!

REGISTERED TOOLS
GREENLEE
FOR THE CRAFTSMAN

Send for complete information on GREENLEE Hydraulic Pipe Pushers.
Greenlee Tool Co., Division of Greenlee Bros. & Co., 2022 Columbia Avenue, Rockford, Illinois.

Check and Mail

Use Coupon on Page 23

Rugged Traffic Lamp

442. Because of their extra-rugged construction for continuous "on-off" twenty-four-hour service, traffic signal lamps are included in a 4-page illustrated bulletin describing four types of light bulbs especially designed for rugged-duty service. Bulletin 103 may be obtained from Lustra Corporation of America, 40 West 25 St., New York 10, N. Y.

Quick Patching

443. Kwik-Mix Bituminous Mixers utilize two innovations that greatly reduce the time necessary for performing patching jobs. Direct pouring into the break eliminates the necessity for a wheelbarrow, and the non-tilting discharge saves time and energy. Write to the Kwik-Mix Company, Port Washington, Wis., for details of its production speed-up machine.

Protective Coatings

444. W. A. Briggs Bitumen Co. reports that you will obtain the maximum results from the protective coatings you apply on water tanks and mains, pipes, and cooling towers if you apply it correctly. Send for the booklet, *Permanent Protection*, from the W. A. Briggs Bitumen Co., 3303 Richmond St., Philadelphia 34, Pa.

Gate Valves and Hydrants

445. Write to the Rensselaer Valve Co., Troy, N. Y., for information about its gate valves and hydrants. Meticulously manufactured, the Rensselaer is produced to give years of trouble-free service geared to your requirements.

Machines for Accurate Clerical Work

446. The overwhelming amount of clerical work attached to running so intricate a system as your municipal government can be appreciably reduced by the use of labor and time-saving Burroughs machines. Payrolls, records, and statistics are greatly reduced by these mechanical employes. Write to the Burroughs Adding Machine Co., Detroit 32, Mich., for detailed information.

Attractive House Numbers Combined with Legibility

447. The high degree of legibility and permanence of Premax stamped and embossed metal house numbers will find favor with the citizens of your city. For description of styles and prices, write to Premax Products, Division of Chisholm-Ryder Co., Inc., 3838 Highland Ave., Niagara Falls, N. Y.

Small Gasoline Engines

448. The McCulloch Motors Corp., 6101 W. Century Blvd., Los Angeles 45, Calif., will send you its new 8-page brochure describing its 2-cycle Series 1200 die-cast industrial gasoline engines, available in 2½ to 4 hp.

Automatic Filter Removes Non-Settleable Solids

449. The Automatic Magnetite Filter is a highly efficient mechanism for the removal of suspended solids from municipal as well as industrial liquids—water purification, sewage, commercial processes. You can use this filter either as a single unit, or in conjunction with other processing units already in use. A folder on the many mechanical and operational advantages of this economical method of removing non-settleable solids is available by writing to the Magnetite Filter Corp., 10 East 40 Street, New York, N. Y.

(*Continued on page* 28)

ALLIS-CHALMERS *First Again*

NOW WITH 1,000 HOUR LUBRICATION

Truck Wheels
Front Idlers
Support Rollers

GREASING JOB IS EASY FOR THIS OPERATOR

. . . no fighting through mud to reach truck wheels, front idlers and support rollers! With Allis-Chalmers' 1000-hour truck assembly lubrication, operator can select convenient time and spot to replenish lubricant.

"GOODBYE" to old-fashioned, expensive, time-consuming tractor maintenance methods.

NOW . . . truck wheels, idlers and support rollers on all Allis-Chalmers crawler tractors are GREASE-PACKED at the factory. Lubricant needs only to be replenished . . . not replaced . . . once every *1,000 hours*. That's . . . ONCE IN SIX MONTHS . . . on a 40-hour week basis! This long interval is made possible by taking full advantage of the improved Positive Seal, *exclusive in A-C tractors*.

What it means! Relieves you of the responsibility of frequent lubricating attention . . . results in less down time for greasing or repairs . . . considerably reduces lubricant cost . . . adds a factor of safety by assuring adequate lubrication for long operating periods. Result — your maintenance cost is reduced and tractor operating life extended.

For the full story of this and other features which make Allis-Chalmers tractors steady, high yardage movers, contact your Allis-Chalmers dealer.

ALLIS-CHALMERS
TRACTOR DIVISION • MILWAUKEE 1, U. S. A.

This new HEIL
COLECTO-PAK
Municipal Refuse
Disposal Body

gives you

Bucket unloads in less than a minute under fingertip control.

★ Low loading height
★ Double capacity
★ Complete enclosure
★ Easy maintenance

Automatic, hydraulic-operated packer plate packs 20 yds. in a 10-yd. body.

The all-enclosed, water-tight Heil Colecto-Pak is the answer to your search for a modern method of speeding-up, simplifying, and improving garbage collection and disposal.

This unit has a ¾-yard loading bucket at a 35-inch height making it extra easy to load. This "power-lifted" bucket deposits load and returns to starting position in less than a minute. At the same time the hydraulic-operated packer plate is compressing the material down toward the discharge end. It is possible to compress 20 yards of wrapped garbage into this 10-yard body.

With this unit your city has a clean, sanitary means of collecting garbage with none of the unsightly and unsanitary features imposed by "open body" collectors. Your city can feel proud of its advanced thinking in purchasing a Heil Colecto-Pak.

BH-114

Tapered body construction assures speedy discharge regardless of compression.

Write for bulletins.

ARMY NAVY
THE HEIL CO.
GENERAL OFFICES • MILWAUKEE 1, WISCONSIN

Check and Mail

Use Coupon on Page 23

Insulated Cables without Lead Sheaths

450. The added economy and ease of handling that result from cables which require no lead sheaths are appreciable. Hazard's Hazaprene and non-metallic armorite cables have been found highly effective for street lighting systems and are resistant to acids, alkalis, oil, moisture and heat. For additional information about this lightweight facile cable, write to Hazard Insulated Wire Works, Division of The Okonite Co., Wilkes-Barre, Pa.

Flow-of-Water Tests

451. Bulletin 50, distributed by the Simplex Valve & Meter Co., 6789 Upland St., Philadelphia 42, Pa., contains descriptions of apparatus and complete operating instructions for all types of tests relative to the flow of water: water waste survey, pump discharge force, test work. Portable, yet sturdy, the equipment may be used in conjunction with a Simplex recording instrument to make permanent records.

Hauling Trailers for Any Job

452. The Martin carry haul trailers incorporate three features for added efficiency: low platforms for easy loading, economical initial and operation cost, and sturdy construction. These trailers may be obtained in a wide variety of sizes. Write to the Martin Machine Company, Kewanee, Ill., for additional information.

Low Up-Keep Cranes and Winches

453. The Gar Wood cranes and winches are designed for the hard jobs. Engineered to perform economically, Gar Wood products are tested for maximum safety and ease. Additional data and specifications are available from Gar Wood Industries, Inc., 7924 Riopelle St., Detroit 11, Mich.

Chain Link Fences

54. An inexpensive way of protecting property against illegal entrance is by surrounding with chain link fences, with or without barb-wired tops. Manufactured from heavily galvanized iron and steel or aluminum, the mesh is further strengthened by hot galvanization after weaving. Write to Wickwire Spencer Steel, 361 Delaware Ave., Buffalo 2, N. Y., for catalogue and free estimates.

Simplifies Loader Operation

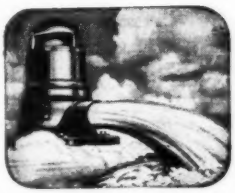
455. The Model 3 Athey force-feed loader features four levers directly in front of the steering wheel for easy operation of the hydraulic control and a newly designed conveyor that delivers faster loading. Its one-lane loading permits normal flow of traffic, and the high degree of operator visibility facilitates rapid work. Write to Athey Products Corp., 5631 West 65 St., Chicago 38, Ill., for complete details.

Use Tractor Excavators for Year-Round Maintenance Work

456. The Traxcavator is a machine that you will find useful for maintenance work right through the seasons. From street cleaning to snow removing, this tractor, which travels up to six miles per hour, is highly practical. In addition, the Traxcavator digs and loads, can rip obsolete paving, and is practicable for all types of municipal maintenance and construction work. Write to the Trackson Co., Dept. AC17, Milwaukee 1, Wis., for details.

(*Continued on page 26*)

WATER MEANS A LOT TO CITIES LIKE SIOUX FALLS, S. D.



HIGHEST EFFICIENCY

Layne Vertical Turbine Pumps are now available in sizes to produce from 40 to 16,000 gallons of water per minute. Their high efficiency saves hundreds of dollars on power cost per year.

Sioux Falls, S. D., is a typical American City. Like many other smaller towns, it is growing into a much more important distribution and manufacturing point. Water for further growth was needed in large—but economical quantities. The choice was a Layne Well Water System that is now producing a million gallons daily.

Sioux Falls is not burdened by high operation cost, and furthermore there will be very little—or perhaps no repair expense for years to come.

Layne Well Water Systems, used and famous the world over, are engineered for heavier duty than ever called upon to perform. Such extra ruggedness and remarkably fine quality makes them an unmatched investment for any city or industry. These Well Water Systems are built in a wide range of capacities suitable for present needs and future growth. Space requirements are small and installations can be completed in a matter of weeks.

For further information, literature, etc., address Layne & Bowler, Inc., General Offices, Memphis 8, Tenn.

LAYNE
AFFILIATED COMPANIES

Layne-Arkansas Co., Stuttgart, Ark. ★ Layne-Atlantic Co., Norfolk, Va. ★ Layne-Central Co., Memphis, Tenn. ★ Layne-Northern Co., Mishawaka, Ind. ★ Layne-Louisiana Co., Lake Charles, La. ★ Louisiana Well Co., Monroe, La. ★ Layne-New York Co., New York City ★ Layne-Northwest Co., Milwaukee, Wis. ★ Layne-Ohio Co., Columbus, Ohio. ★ Layne-Pacific, Inc., Seattle, Wash. ★ Layne-Texas Co., Houston, Texas ★ Layne-Western Co., Kansas City ★ Layne-Western Co., of Minn., Minneapolis. Minn. ★ International Water Supply, Ltd., London, Ontario, Canada ★ Layne-Hispano Americana S. A., Mexico, D. F.

LAYNE

WELL WATER SYSTEMS
VERTICAL TURBINE PUMPS

TANKS

For over 80 years, Cole elevated tanks have been helping provide uniform water pressure, fire protection and adequate water reserve in scores of American cities.

Capacities 5,000 to 2,000,000 gallons—with hemispherical, ellipsoidal or conical bottoms. Also flat tanks for storage of butane and propane gas. Correctly built in accordance with ASME specifications.

Cole elevated tanks are correct in design. Their simplicity contributes to their low cost of maintenance. A large and experienced engineering department is at the service of prospective customers to assist in solving their problems.

We invite your inquiries. State capacity, height to bottom, and location.

R.D. COLE MFG. CO. ESTABLISHED 1854
Newnan Ga.

Check and Mail

Use Coupon on Page 23

Prepare for Emergencies with Current Generator

457. The Katolight will generate AC current any place, any time, and will be of particular value in cases of power failure as well as for the generation of electricity for drills, compressors, and other municipal work. Portable or stationary, these generators come in a variety of types from 500 watt to 100 kw. The Kato Engineering Co., 1405 First Ave., Mankato, Minn., will send you their descriptive booklet upon request.

Control Water Level Electronically

458. Have you any problems in the control of the water or liquid level in any of the tanks, standpipes, or basins used in your municipal services? If you do, The Lumenite Electronic Co., 407 S. Dearborn St., Chicago 5, Ill., publishes a 4-page bulletin on the Faraton electronic liquid level control that may help you. It has no floats or moving parts and requires less than ½-volts. It can control the level of liquids in either open or closed containers; and, since it is actuated by electronics, its operation is not affected by heat, cold, steam, frost, pressure, or vacuum.

Is This What You Want in a Truck?

459. Known as the "Army Horse," the GMC truck will give you the same kind of rugged power as it did the Army. GMC Truck & Coach Division, Detroit, Mich., will send you more complete details on the all-truck construction and features of the engine. The truck is available in a wide range of models, chassis types, and sizes—from ½ to 20 tons.

Street and Highway Torches

460 An indispensable accompaniment of street or repairs is a torch which is dependable and bright. The Embury Luck-E-Lite torches give off bright illumination that is easily visible even in bad weather and have a guaranteed performance reputation. Write to the Embury Mfg. Co., Warsaw, N. Y., for additional data.

Sweep Snow or Dirt Away —with One Attachment

461. Remove snow as well as dirt from your city's streets with the Little Giant power sweeper. Attachable to any tractor or jeep, this power sweeper is obtainable in brush lengths of from 5 to 9 feet. Its two-in-one service, plus the low cost, is explained in a booklet obtainable from the Little Giant Products, Inc., 1585 N. Adams St., Peoria 2, Ill.

Bronze Tablets Enhance Municipal Buildings

462. For a bronze tablet that has the distinction and dignity commensurate with your organization, contact the United States Bronze Sign Co., Inc., 570 Broadway, Dept. AC, New York 12, N. Y. The company's illustrated catalogue of tablets for every purpose, and information about its "order-by-mail" service is available upon request.

Complete Laboratory Testing Available

463. Chemical, physical, and metallurgical analyses, including the examination of cement and concrete, are available to city officials through the Robert W. Hunt Co., whose extensive facilities include complete examination and testing. Write to the Robert W. Hunt Co., Engineers, 175 West Jackson Blvd., Chicago, Ill.

What a Haiss Snow Loader does for many cities... and can do for you!

- *One machine does the work of 80 men* shoveling snow by hand.
- *Pays for itself* each winter—100% return on investment annually.
- *Dependable*—available any hour, night or day, at a moment's notice.
- *Fast*—cleans up congested traffic areas in a few hours.
- *Loads* 15 yards a minute.
- *Reduces* truck rentals $200 to $300 or more per 8-hour shift.
- *Breaks up* and handles hard and frozen snow better than any other machine—due to chopping action and upward lift of cutting blades.
- *Mobility*—changes location quickly—6½ miles per hour traveling speed.

Haiss is now a wholly-owned subsidiary of Pettibone Mulliken Corporation of Chicago. With new management and much larger resources, Haiss can now do a still better job for its customers... better machines and servicing, larger production, quicker deliveries.

Haiss specializes in equipment to load bulk materials... snow, sand, gravel, stone, coal, topsoil, etc.

Its machines are money-makers for their owners.

George Haiss Manufacturing Co.
140th Street and Park Avenue
New York 51, N. Y.

LANDMARKS

. . . in beautiful Evanston, Illinois

Year after year LUDLOW Hydrants continue to guard life and property in thousands of communities all over the country. Landmarks of security, they are accepted by residents as a part of the traditional American scene.

LUDLOW Hydrants are faithfully serving 90% of all Evanston. Always ready with quick water for any emergency, they provide proper shut-off without water hammer — correct drainage — easy inspection and servicing.

THE LUDLOW VALVE MFG. CO., INC.
TROY • N. Y.

At right — LUDLOW List 90 Slide Gate Hydrant, embodying all the latest improvements in manufacture.

LUDLOW HYDRANTS & VALVES
SINCE 1866

H-72

A "Bull's Eye" every time

A/H LEAK LOCATOR

When hunting leaks, you need not be an expert marksman if you use the A/H Leak Locator. Just place it in contact with the earth, put on the ear-phones, and the A/H Locator will lead you to that underground leak in a jiffy. No hit-and-miss excavating, no unnecessary resurfacing of the street. Price complete with carrying case and strap: $75.00.

pipe locators	dipping needles	pipe phones
$100.00	$17.50	$3.70

Write for circular AC-2

ALLEN - HOWE ELECTRONICS CORP.

150 MAIN ST. PEABODY, MASS.

ETNYRE
Street Flushers
"THE MACHINE OF A DOZEN USES"

CLEANS STREETS UP TO 42 FT. WIDE!

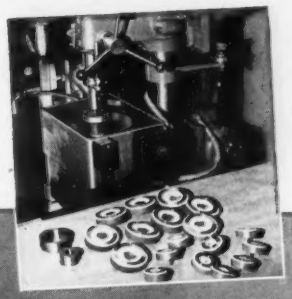
Knife-edged, high pressure streams of water from three nozzles send *all* waste to gutter... streets are cleaned in one trip, irrespective of parked cars! You can use the Etnyre Sanitary Street Flusher on many other jobs, too—sewer cleaning, fire fighting, tree spraying. Get delivery schedules and prices from your Etnyre dealer today or write us.

E. D. ETNYRE & CO., Oregon, Illinois

AIR PLUS JAEGER COMPRESSOR

Any Jaeger Compressor will hold air above 90 lbs. pressure 20 to 25 minutes (5 to 10 times longer than others)

THAT'S PROOF YOUR TOOLS ARE GETTING ALL THE AIR!



"Ultra-lapping" produces precision finished valve surfaces never before obtained.

You've got to hold air in order to deliver it. Because they're individually "ultra-lapped" (an exclusive process) Jaeger "Tough Swedish Twin" valves have perfect leak-proof closure—5 to 10 times more effective than the best ordinary valves—one of the reasons why "AIR PLUS" compressors deliver more air, more efficiently, at slower piston speeds and the lowest known cost in fuel. Ask for Catalog JC-5. It describes the most advanced line of air compressors in America—sizes 60 to 500 feet.

THE JAEGER MACHINE CO.

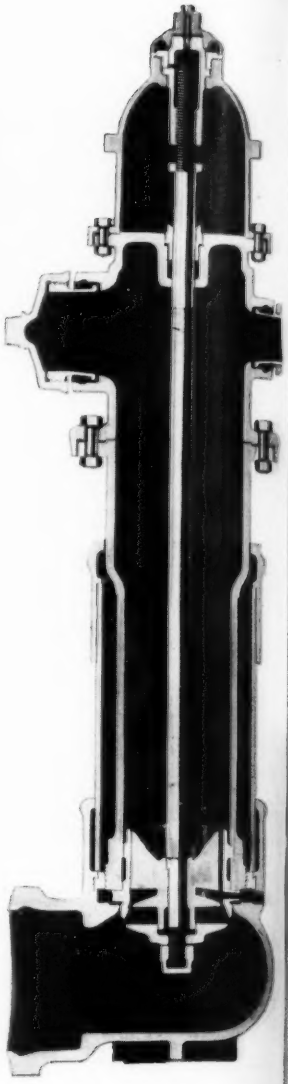
Main Office and Factory — Columbus, Ohio

REGIONAL OFFICES

8 E. 48th St. New York 17, N. Y. | 26 N. LaSalle St. Chicago 1, Ill. | 235-38 Martin Bldg. Birmingham 1, Ala.

AIR COMPRESSORS, MIXERS, PUMPS, HOISTS, PAVING MACHINERY, TRUCK MIXERS—DISTRIBUTORS IN 120 CITIES

FEBRUARY IS JUNE TO A MATHEWS



The colder the weather, the tougher the job of fighting fire. But so far as hydrant service goes, no fireman ever worries about a Mathews. Mathews Hydrants are independent of the weather. No machined part is exposed to water. The stem thread cannot freeze to the nut. The lower end of the stem is sealed by a lock nut against contact with water. The drain valve drains perfectly dry, the main valve cannot leak. Free to move up and down, the "Sand-Spun" protection case takes the thrust of the freezing earth. And, to cap this remarkable assembly, a malleable iron shield operating nut protects the revolving nut against rain, snow, or dust. Behind the Mathews is more than 75 years' experience in quality-hydrant building. Give *your* community the extra safeguard of Mathews protection.

OTHER FEATURES OF MATHEWS LEADERSHIP

Barrel, containing all working parts, is removable • Repair or replacement is entirely above-ground • Head can be rotated a full circle, on swivel flange • Replaceable head permits change in nozzle outlets • Nozzle levels can be raised or lowered • Barrel screws into bronze bushing in elbow • Operating thread (easily accessible) is only part that needs oiling • A modern barrel makes even the oldest Mathews good as new.

MATHEWS HYDRANTS

Made by **R. D. WOOD COMPANY**

PUBLIC LEDGER BUILDING, INDEPENDENCE SQUARE, PHILADELPHIA 5, PA.

MANUFACTURERS OF "SAND-SPUN" PIPE (CENTRIFUGALLY CAST IN SAND MOLDS) AND R. D. WOOD GATE VALVES

Can you See Ahead?

24° Vision, 1910

20° Vision, 1920

14° Vision, 1930

9° Vision, 1940

250% MORE VISION

FOR CAB-AHEAD-OF-ENGINE MODELS WHEN COMPARED WITH PRE-WAR MODELS!

In the war-time survey you asked for more driver vision in the post-war fire engine to reverse the pre-war trend that was an increasing handicap to the driver. American-LaFrance now provides this improved visibility.

More vision for safer driving in heavy traffic and at street intersections.

More vision for accurately spotting the pumper at a hydrant.

More vision for getting through narrow streets and alley ways.

More safety for the men on the apparatus as the operating records of many bus companies show with the driver up front.

Specify American-LaFrance for more safety in the operation of your equipment.

AMERICAN-LA FRANCE-FOAMITE CORPORATION
ELMIRA, NEW YORK, U. S. A.
LA FRANCE FIRE ENGINE and FOAMITE LIMITED
TORONTO, 9, ONTARIO, CANADA

ALFCO

ADVANTAGES OF PRESTRESSED CONCRETE CYLINDER PIPE • NO. 2

.....In all Sizes

● The Lock Joint Pipe Company is now prepared to supply Prestressed Concrete Cylinder Pipe in sizes from 16″ to 84″ diameter—and even larger—for high pressure pipelines.

Prestressed Concrete Cylinder Pipe retains the fundamental principles of Lock Joint design in having a continuous welded steel cylinder with steel joint rings forming bell and spigot ends with a rubber gasket as a sealing element. The cylinder is lined with a substantial thickness of concrete and after proper curing is spirally wound with high tensile wire under tension.

This method of design makes available pipe in all sizes for higher range of heads with the same economy of first cost and maintenance which Lock Joint Pressure Pipe has always effected. That's one of the reasons you'll find Prestressed Concrete Cylinder Pipe an ideal product for your water supply and distribution mains and oil or gas transmission mains.

A Hazen-Williams Hydraulic Slide Rule will gladly be sent upon request with our compliments.

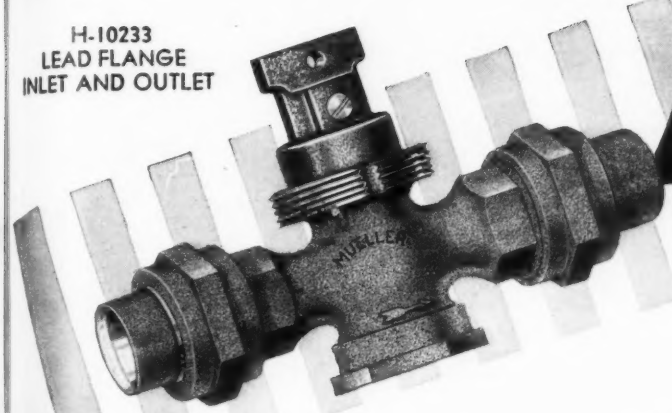
LOCK JOINT
Reinforced Concrete
PRESSURE PIPE

LOCK JOINT PIPE COMPANY
Established 1905
P. O. BOX 269, EAST ORANGE, NEW JERSEY
Denver, Colo. · Chicago, Ill. · Kenilworth, N. J. · Kansas City, Mo. · Rock Island, Ill.
Joplin, Mo. · Valley Park, Mo. · Cleveland, Ohio · Hartford, Conn. · Navarre, Ohio

SCOPE OF SERVICES — *Lock Joint Pipe Company specializes in the manufacture and installation of Reinforced Concrete Pressure Pipe for Water Supply and Distribution Mains of large diameter as well as Concrete Pipe of all types for Sanitary Sewers, Storm Drains, Culverts and Subaqueous lines.*

LOOK AT THESE CURB STOPS

H-10233
LEAD FLANGE
INLET AND OUTLET



H-10201
IRON PIPE
INLET AND OUTLET

H-10221
WIPED JOINT INLET
IRON PIPE OUTLET

Regardless of the type of connection you are called upon to make, you will always find a Mueller Curb Stop that is made for that particular condition. All of them are "Ground Key", which means each heavy plug is ground and lapped into its rugged body, insuring easy turning, an accurate seal, and dependable long-life service. For complete satisfaction, always install Mueller Brass Goods.

H-15125
COPPER PIPE INLET
IRON PIPE OUTLET

MUELLER CO.

DECATUR, ILLINOIS
LOS ANGELES, CALIF.
SARNIA, ONTARIO, CAN.

GUNITE *Rebuilds Reservoir*

This concrete reservoir, used for water storage in a Virginia city, developed a crack. Leakage undercut a portion of the sides and bottom, resulting in a major failure and leaving the city without storage facilities. Our engineers were consulted and a GUNITE repair (sand and cement applied pneumatically) was begun.

The concrete over the undercut area was chipped out and the cavity filled with broken concrete, stone, and shot with GUNITE. All disintegrated concrete throughout the reservoir was chipped out and discarded. These areas were restored to original lines and an entirely new 2" reinforced lining was applied with GUNITE, as illustrated.

This repair was done rapidly, efficiently, and economically by men who know their business. It resulted in a new reservoir, completed and put into service 28 days after our forces started work. Write for our recommendations on how GUNITE can solve your concrete maintenance and construction problems. An attractive bulletin is awaiting your request.

PRESSURE CONCRETE COMPANY

ENGINEERS AND CONSTRUCTORS

6 AVENUE B
NEWARK, N. J.

SOUTH COURT ST.
FLORENCE, ALABAMA

MANAGEMENT INFORMATION SERVICE

Available to Cities and Towns on Subscription Basis

It Includes

1. Prompt replies to specific inquiries on management problems
2. Copies of replies to inquiries from other cities
3. Subscriptions to monthly journal PUBLIC MANAGEMENT
4. Copies of the MUNICIPAL YEAR BOOK

How It Works

A city has a management problem—needs technical advice—contacts MIS—receives prompt reply—city thereby aided in reaching best solution.

What It Costs

Subscription fee varies with size of city from $20 for under 5,000 to $400 for cities from 250,000 to 500,000 population. Over 500,000—on application.

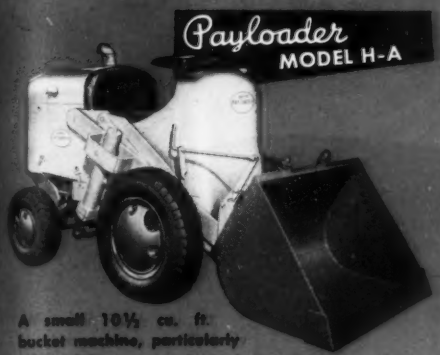
MIS is now serving more than 200 cities ranging in size from 1,000 to 400,000. For more details and fee for your city write:

The International City Managers' Association

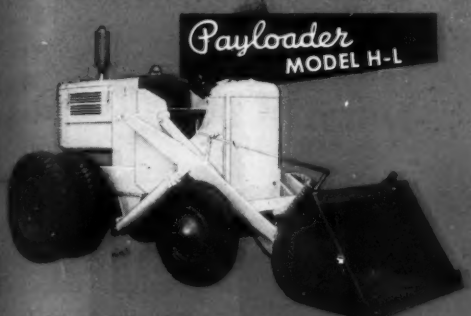
1313 East 60th Street — Chicago 37, Ill.

Versatile Tractor Shovels

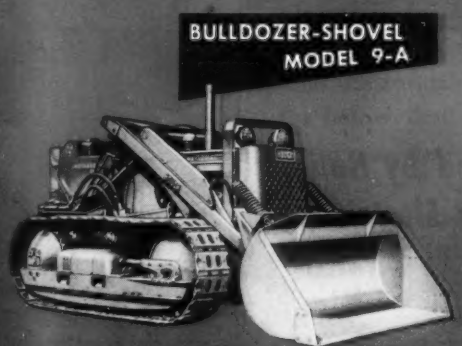
. . . FOR BULK MATERIAL HANDLING



A small 10½ cu. ft. bucket machine, particularly adapted for congested areas. Fast maneuverable.



A larger 1 yd. machine for additional capacity. Convertible for crane use or bulldozer or drawbar service. Gasoline or Diesel power.



International TracTracTor power for heavy digging, stripping, loading etc. Gasoline or Diesel power.

DIG LOAD CARRY DUMP

Cities of every size are adding Hough Tractor Shovels to their construction and maintenance equipment—to handle street repairs; black-top patching; load sand, gravel and aggregate; handle cement, snow or any bulk material; build sanitary fill garbage disposal projects; maintain parks, beaches and airports. Wherever there is material to be moved, loaded or handled a Hough Tractor Shovel will do it economically and efficiently.

Built in a variety of sizes and types, on tracks or wheels, Hough Tractor Shovels earn their salt every day—the year 'round.

Fast, versatile and maneuverable, they are ruggedly constructed and soundly engineered; based on over 25 years of material handling experience, and backed by a world-wide distributor sales-service organization. It will pay you also to investigate the many advantages of Hough Shovels for your city.

SEND for complete information . . .

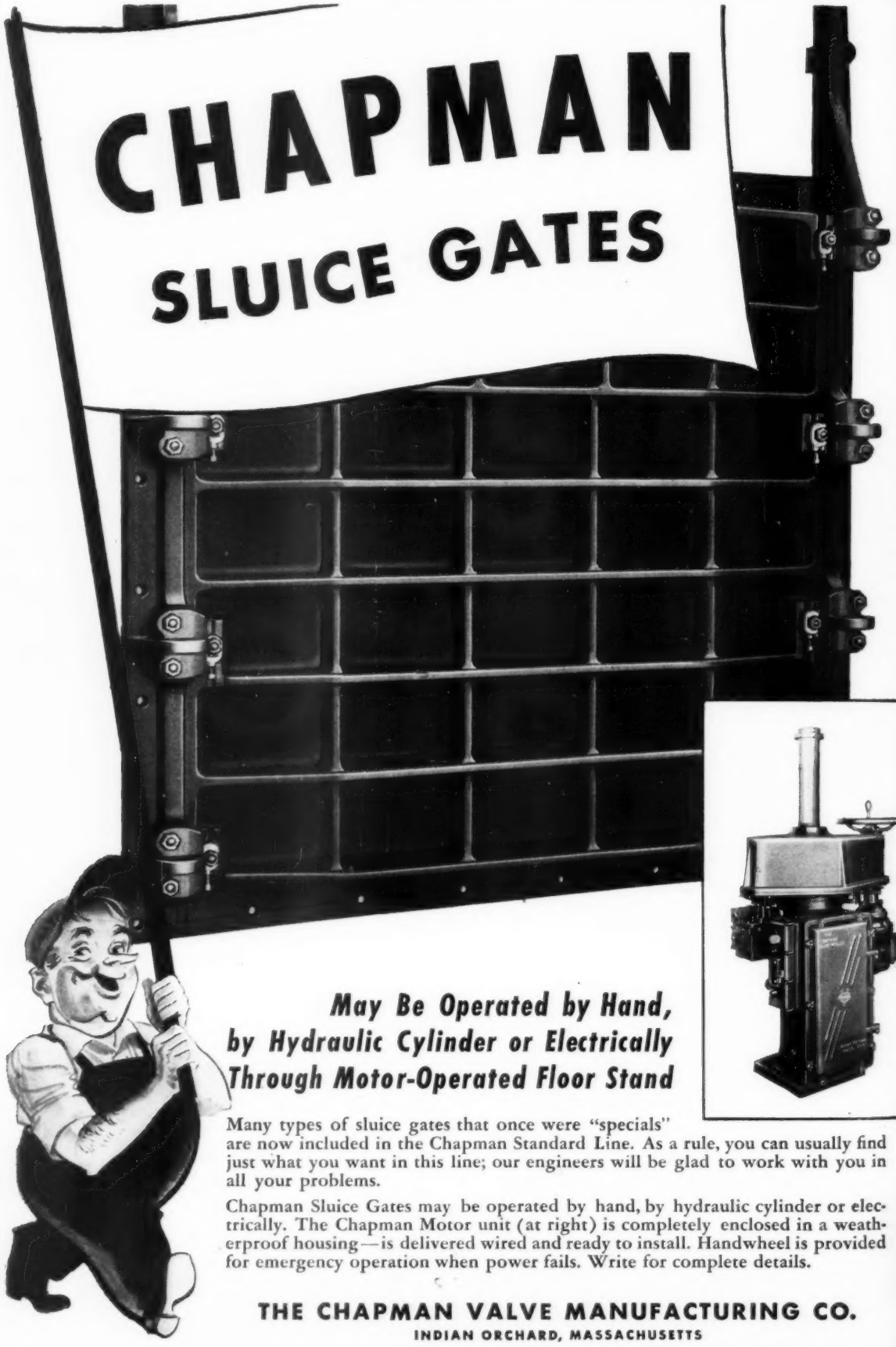
on Hough material handling equipment. There is a Hough sales-service distributor near you.

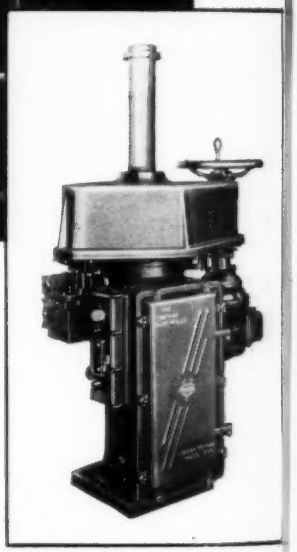
THE FRANK G. HOUGH CO.

MATERIAL HANDLING EQUIPMENT SINCE 1920

710 SUNNYSIDE AVE. LIBERTYVILLE, ILL.

CHAPMAN
SLUICE GATES





May Be Operated by Hand, by Hydraulic Cylinder or Electrically Through Motor-Operated Floor Stand

Many types of sluice gates that once were "specials" are now included in the Chapman Standard Line. As a rule, you can usually find just what you want in this line; our engineers will be glad to work with you in all your problems.

Chapman Sluice Gates may be operated by hand, by hydraulic cylinder or electrically. The Chapman Motor unit (at right) is completely enclosed in a weatherproof housing—is delivered wired and ready to install. Handwheel is provided for emergency operation when power fails. Write for complete details.

THE CHAPMAN VALVE MANUFACTURING CO.
INDIAN ORCHARD, MASSACHUSETTS

Long life and low annual maintenance cost are the governing factors in the economical operation of a water distribution system. With both factors assured, as in cast iron pipe, a higher *first cost* is soon offset by a *low cost per service year.* And that is the cost that counts.

The long life of cast iron pipe is a matter of record. In 200 of America's largest cities, some or all of their original cast iron distribution mains are still in use, after 50 to 125 years of efficient service.

The low annual maintenance cost of cast iron pipe is also a matter of record. Official reports from 195 water works superintendents show conclusively that the annual maintenance cost of cast iron distribution mains is far below that of other pipe materials.

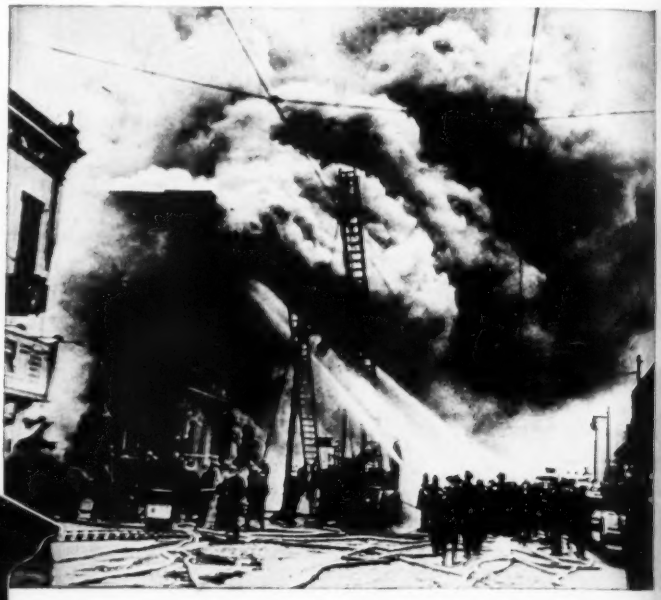
A long life, and an efficient one, has earned for cast iron pipe the right to be known as Public Tax Saver Number One. Saving money day-by-day in maintenance cost. Saving money from generation to generation by avoided replacements that would be necessary were shorter-lived pipe used. Cast Iron Pipe Research Association, T. F. Wolfe, Engineer, 122 S. Michigan Avenue, Chicago 3.

CAST IRON PIPE
SERVES FOR CENTURIES

LOOK FOR THIS MARK — IT IDENTIFIES CAST IRON PIPE

DELAYED ALARMS

CAUSE FIRE DISASTERS



WHEN FIRE OCCURS—

PULL A FIRE ALARM BOX IMMEDIATELY!

"It is generally recognized that there is no other thoroughly satisactory means of sending and receiving fire alarms than an approved fire alarm telegraph system. Telephones should not be relied upon to replace needed boxes nor to supplement any inadequacy in number or location of boxes."

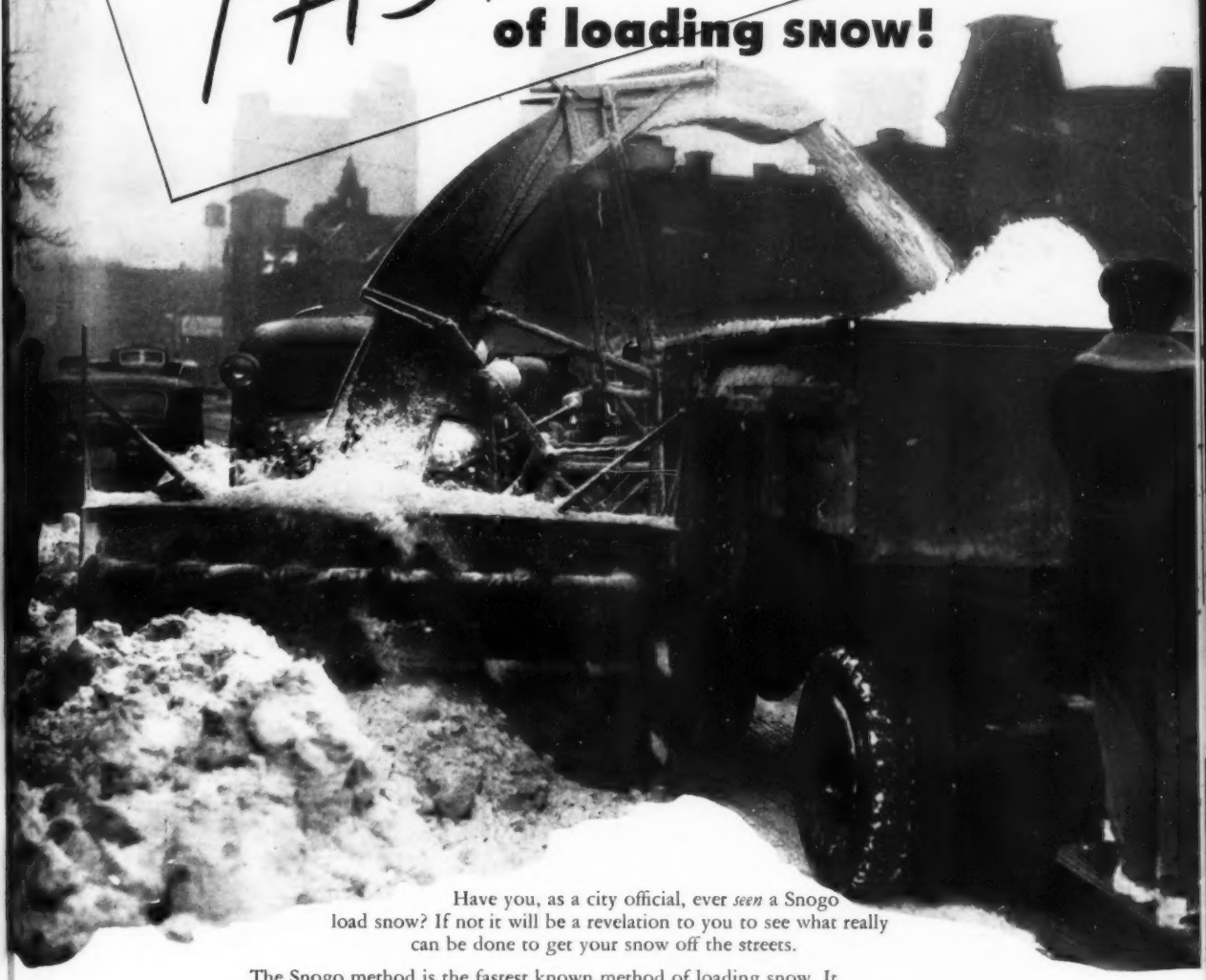
—National Fire Protection Association

DETAILED INFORMATION ON REQUEST

THE GAMEWELL COMPANY

NEWTON UPPER FALLS 64, MASSACHUSETTS

the FASTEST KNOWN METHOD of loading SNOW!



Have you, as a city official, ever *seen* a Snogo load snow? If not it will be a revelation to you to see what really can be done to get your snow off the streets.

The Snogo method is the fastest known method of loading snow. It will load the largest truck in 10 to 20 seconds. Not only is it fast, but due to the force with which it discharges the snow to the trucks, it compacts the truck to capacities impossible by hand labor or with other types of equipment. This means lower cost per truck, and less truck travel.

Snogo takes the snow *off* the street. It doesn't build up banks to drain back or call for hand removal. Snogo cleans right down to the pavement and close to the curb. Crosswalks, drives and intersections are left clear, and as Snogo travels with the traffic, normal traffic conditions can be maintained.

Snogo has modernized city snow clearance and reduced its cost. *Remove* your snow, don't first move it. Let us tell you what other cities and towns are doing.

POSITIVELY GUARANTEED to handle any snow condition that will ever occur on any airport

KLAUER MANUFACTURING CO.
DUBUQUE, IOWA

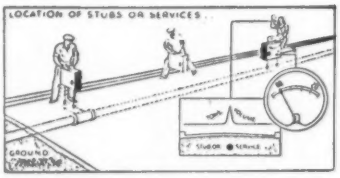
SNOGO

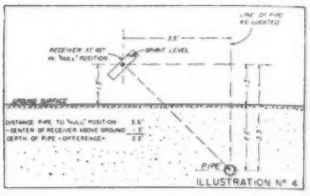
A SNOGO For EVERY BUDGET

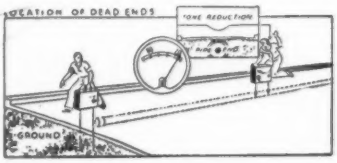
Buried Pipe and Cable Finder

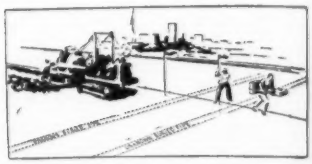
M-SCOPE

Water and Oil Leak Detector









The M-Scope is solving—successfully—the varied problems involved in the development, operation and maintenance of buried pipe and cable systems and is in daily use by representative organizations in such important groups as:

- MUNICIPALITIES
- GOVERNMENT PROJECTS
- SEWERAGE AND WATER PLANTS
- PUBLIC UTILITIES
- CONSULTING ENGINEERS
- AIRPORTS
- INDUSTRIAL PLANTS
- OIL AND PIPELINE COMPANIES

Free 16-Page Booklet Upon Request

FISHER RESEARCH LABORATORY, Inc. Palo Alto, California

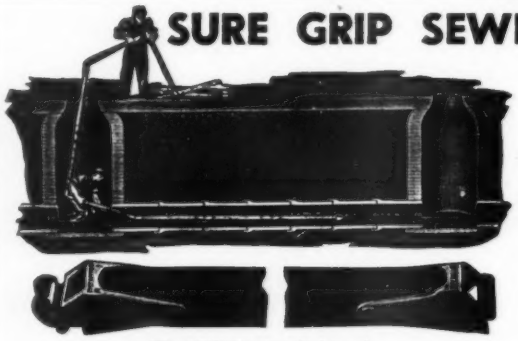
Eastern Distributors of
FISHER M-SCOPE and LEAK DETECTORS

Joseph G. Pollard Co., Inc.

PIPE LINE EQUIPMENT

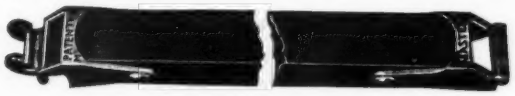
141 ASHLAND PLACE, BROOKLYN 1, NEW YORK

SURE GRIP SEWER RODS and ACCESSORIES



The REGULAR, a light rod,
Fir stock 1¼ x 1¼ inch square.

are joined together with a dual lock forming a rigid chain that will float. They can be coupled or uncoupled upon the street if desired. Made in two sizes.



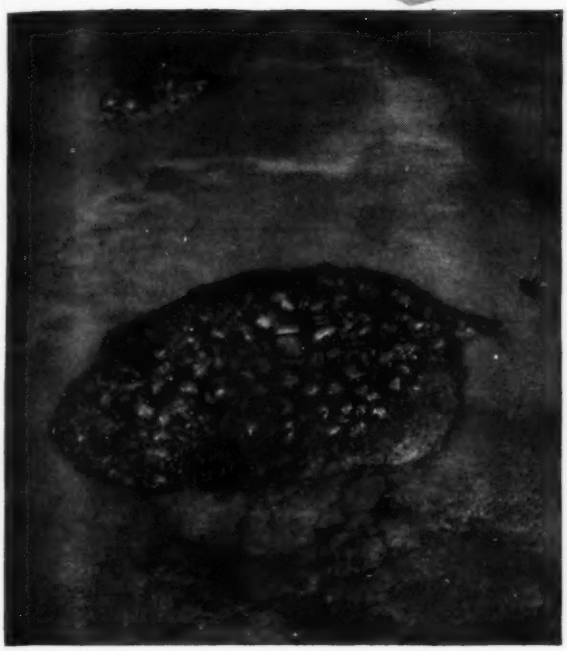
The MASTER, a heavy duty rod,
Fir stock 1½ x 1½ inch square.

Write for catalog on complete line of sewer cleaning equipment.

EXPANDING SEWER MACHINE CO.
NAPPANEE, IND.

BUY all the Bonds you can . . . KEEP all the Bonds you buy
PROTECT YOUR FUTURE — Buy your EXTRA Bonds now!

HAVE YOUR ROADS GOT SPRING FEVER?



IN the spring, local eruptions caused by frost heavings often create pot holes and surface breaks that are not only a menace to the safety of motorists, but also a menace to the life of the road. If uncared for, they will wreck even a good pavement.

To the over-burdened road official, faced with important new roads which must be built or old roads which must be re-surfaced, this constitutes a tremendous problem.

But it need not be!

For Tarvia* KP road tar and Tarvia-lithic* bituminous mix are the road-builder's cure-alls. Applied cold, they may be used to patch any surface break or hole. The methods are simple and inexpensive, and the repair work properly done will add years to the useful life of your roads.

Why not check with the Tarvia field man? He will be glad to give you the benefit of experience accumulated during Barrett's more than 40 years of successful road-building and maintenance.

★ ★ ★

"The Longest Mile," a 30 minute, full-color, 16-mm. sound film on the development and importance of roads will soon be available for showing to highway officials, engineers and civic groups. Ask the Tarvia field man for it, or write the nearest Barrett Tarvia office.

Barrett

Tarvia*

*Reg. U. S. Pat. Off.

ROAD-TAR

THE BARRETT DIVISION

ALLIED CHEMICAL & DYE CORPORATION

40 RECTOR STREET, NEW YORK 6, N. Y.

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THE BEST NON-CORROSIVE AND ANTI-RUST COATING IN THE WORLD WILL FAIL UNLESS PROPERLY APPLIED

AS NATIONALLY APPROVED APPLICATORS OF SUCH MATERIALS AS ***NO-OX-ID***, ***BARRETT*** AND OTHER COATINGS WE COMBINE CRAFTSMANSHIP AND PRODUCT TO INSURE MAXIMUM PROTECTION ON—

STEEL STAND PIPES
ELEVATED WATER TANKS
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WHERE SURFACE OF PRESSURE AND GRAVITY TANKS, COOLING TOWERS, DEHUMIDIFIERS, AIR CONDITIONERS, ETC., REQUIRE TREATMENT OUR SERVICES ARE AVAILABLE.

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Cast Iron Pipe

PLAIN CAST OR SPUN CENTRIFUGAL

Cast Iron Pipe and Special Castings, Bell and Spigot, Flange, Flexible Joint, Culvert, Milled and Plain End Tubes, Cylinders, Flanged and Bell and Spigot Fittings, High Pressure Fire Service Pipe, Warren Short Body Specials, Threaded End Pipe.

Size 2 to 84-inch

Pipe manufactured in accordance with standard specifications adopted and approved by water works associations and engineers.

Warren Foundry & Pipe Corp.
11 Broadway, New York City

Warren Pipe Co. of Massachusetts
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HAND
STORAGE BATTERIES
FOR MUNICIPALITIES

HAND storage batteries are heavy-duty batteries provided with heavy, hand-pasted tank-formed plates, heavy glass mats, acid and heat resisting micro-porous rubber separators, splash decks and genuine hard rubber containers. Built for use in Police Radio cars, Sanitation trucks, snow plows, sweepers, emergency trucks, ambulances, and fire apparatus.

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FOR JOINTING CAST-IRON WATER MAINS

Melted and Poured ***No Large Bell-holes to Dig***
Saves at Least 75%

Leadite is shipped in powder form, packed in sacks of 100 lbs. net each. Leadite tested and used for over 50 years • Leadite joints improve with age.

Be sure it is Leadite and accept no imitations

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No Caulking

FOR STOPPING LEAKS IN PIPE LINES...

Emergency Pipe Clamp—the universal repair clamp the world over, for nearly half a century! Easy to apply. Saves cost of new pipe—eliminates job of tearing out old and putting in new.

M. B. SKINNER CO.
SOUTH BEND 21, INDIANA

SKINNER-SEAL EMERGENCY PIPE CLAMPS

61,112 MILLER METERS Delivered DURING 1946

Sworn and subscribed to by Wm. Koenig, Sec'y.-Treas. of Duncan Meter Corp., this 9th day of January, 1947.

Marvin A. McDaniel
Notary Public

MARVIN A. MC DANIEL NOTARY PUBLIC COOK COUNTY, ILL.

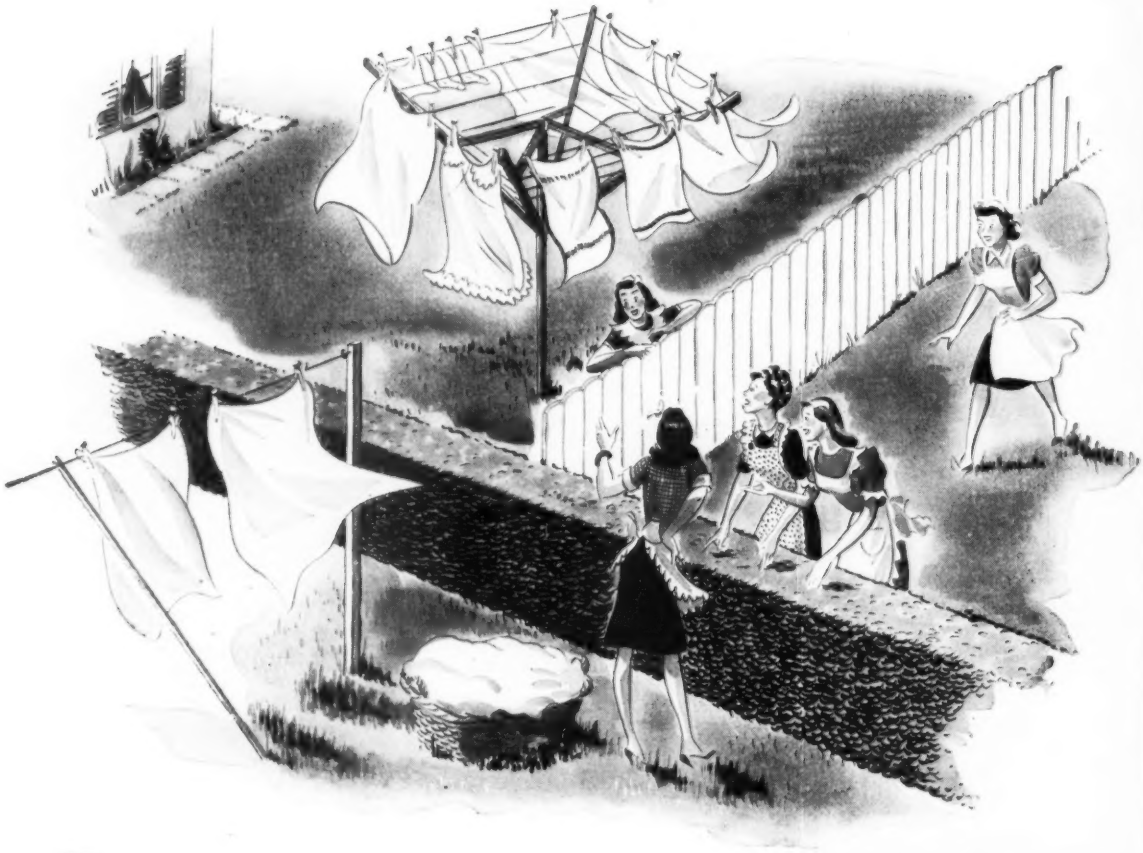
HERE'S HOW CITIES ORDERED THEM FOR STREET USE AND PARKING LOTS

1P only	— 12 Min. for 1-Penny	689
1P only	— 24 Min. for only 1-Penny	30
2P only	— 12 Min. for each Penny	236
1P-1N	— 24 Min. for each Penny; 2 Hours for 1-Nickel	191
2P-1N	— 24 Min. total for 2-Pennies; 1 Hour for 1-Nickel	80
2P-2N	— 24 Min. total for 2-Pennies; 2 Hours for each Nickel	928
3P only	— 36 Min. total for 3 Pennies	184
3P-1N	— 36 Min. total for 3 Pennies; 1 Hour for 1 Nickel	374
5P-1N	— 60 Min. total for 5 Pennies or 1 Nickel	**10,245**
5P-2N	— 60 Min. total for 5-Pennies; 2 Hours for 2-Nickels	252
10P-2N	— 120 Min. total for 10-Pennies; 2 Hours for 2 Nickels	**44,518**
15P-3N	— 180 Min. total for 15 Pennies; 3 Hours for 3 Nickels	1,580
1-Nickel	— 1 Hour for 1 Nickel	110
1-Nickel	— 2 Hours for 1 Nickel	260
2-Nickel	— 1 Hour for each Nickel; 2 Hours for 2 Nickels	290
3-Nickel	— 1 Hour for each Nickel; 3 Hours for 3 Nickels	237
5N-1Q	— 1 Hour for each Nickel; 5 Hours for 1 Quarter	208
6-Nickel	— 90 Min. for each Nickel; 9 Hours for 6 Nickels	700

Any MILLER METER installation, no matter how old, can be modernized at small cost to any rate-time combination needed. Write our Service Dep't. today.

835 NO. WOOD STREET **DUNCAN METER CORP.** **CHICAGO 22, ILL.**

THE WHOLE TOWN'S TALKING!

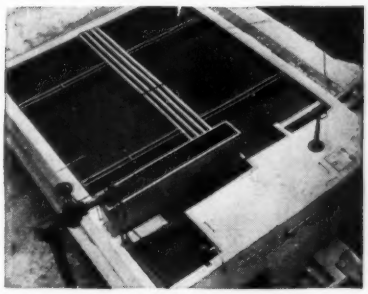


Every housewife in town is bursting with the exciting news of snow-white washes, with less effort, less soap. The reason? Their city management has installed modern, efficient Permutit* Water Conditioning equipment. It's the biggest thing that has happened in years.

From now on, municipal water will be clear...soft...iron-free! And good water does more than end household drudgery; it benefits everyone in town—shops, restaurants, and industry!

If your community has a hard-water problem—and the chances are it has—why not let the engineers of America's most experienced water-conditioning company solve it for you. Write today to The Permutit Company, Dept. A-2, 330 West 42nd St., New York 18, N. Y., or Permutit Company of Canada, Ltd., Montreal.

*Trademark Reg. U. S. Pat. Off.



PERMUTIT SPAULDING PRECIPITATOR ... removes water hardness, dirt, and color by the sludge blanket process. This modern equipment cuts detention time, saves chemicals, takes only half the space of former methods. This is only one of many Permutit methods of treating municipal water supplies.

PERMUTIT

WATER CONDITIONING HEADQUARTERS

December 27, 1946

NORDBERG MANUFACTURING COMPANY

of Milwaukee, Wisconsin

Acquired the Manufacturing Assets and Good Will of

BUSCH-SULZER BROS.-DIESEL ENGINE CO.

of St. Louis, Missouri

BUSCH-SULZER

The reputation of this pioneer American Diesel engine manufacturer will be zealously guarded by the Nordberg Manufacturing Company.

Founded in 1901 by the late Adolphus Busch, the Busch-Sulzer Bros.-Diesel Engine Company built the first Diesel engine in America, following the acquisition by Mr. Busch of the first American manufacturing rights to the Diesel engine from its inventor Rudolf Diesel.

It is with great and mutual pride that both companies announce the continuation of this business as a division of the Nordberg Manufacturing Company, which in recent years has become America's foremost manufacturer of large heavy duty Stationary and Marine type Diesel engines.

Nordberg's present range of Diesel engines will be continued and further expanded to provide the most complete coverage — from 10 HP to 8500 HP — of heavy duty Diesels offered by any American company. Manufacturing, sales and service facilities are being rapidly coordinated to cope with this progressive program enabling Nordberg to supply the ever expanding American and foreign markets.

NORDBERG MACHINERY

NORDBERG

Barber-Greene

Presents

the NEW SNOW LOADER with new speed, new mobility and new usefulness!

B G Model 548

Year-round usefulness; The model 548 may be converted to a B-G Bucket Loader for use during the "no-snow" seasons.

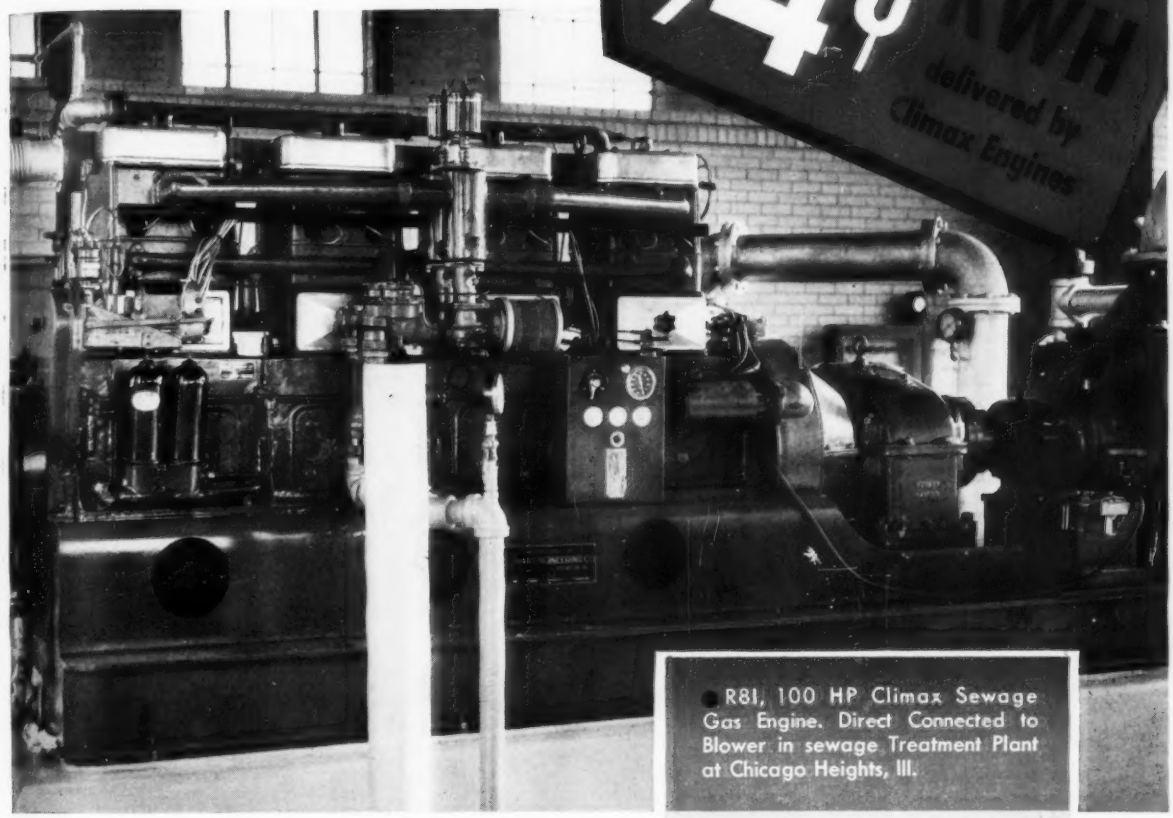
Here's the most important snow-removal news since the introduction of the first B-G Snow Loader twenty-five years ago! The model 548 brings pneumatic-tired speed and mobility to the job of minimizing snow storm expense and traffic tie-ups. Completely new in design, the 548 has speed features that include a four-wheel drive with massive tires that buck windrows without slippage. It travels to the job at 10 miles per hour, and clutches may be disengaged for easy towing. For added loading speed, it is designed to allow trucks to travel in the same direction while loading; and its retractable discharge conveyor extends well over the truck cab to minimize spillage. Works right to the curb. Clearance in operating position is only 11 feet, 3 inches. Illustrative literature available on the 548 and also the 538 Crawler-Mounted Snow Loaders by writing Barber-Greene Company, Aurora, Illinois.

B G BARBER-GREENE COMPANY · AURORA, ILLINOIS

Constant Flow Equipment

LOADERS · PERMANENT CONVEYORS · PORTABLE CONVEYORS · COAL MACHINES · BITUMINOUS PLANTS · FINISHERS · DITCHERS

POWER FROM COST-FREE SLUDGE GAS



R8I, 100 HP Climax Sewage Gas Engine. Direct Connected to Blower in sewage Treatment Plant at Chicago Heights, Ill.

Climax Engines operating on sludge gas operate sewage pumps, blowers and generators (available records of many sewage treatment plants show), at a power cost equivalent to $0.0025 (¼ cent) per kwh.

It can be guaranteed that the sludge gas used to operate Climax Engines for a population of 100,000 can have a cash value of $17,000 a year.

Savings thus effected by operation on by-product gas are supplemented by 50% heat recovery from jacket water and exhaust gas—usually more than is needed to heat digesters and buildings.

For complete information, bulletins or engineering consultation, write Climax Engineering Division, Climax Industries, Inc., Clinton, Iowa.

Climax Sewage Gas Engines are 4, 6, 8 and 12 cylinder, 4 cycle types, rated from 40 to 205 h.p. Climax standby generating sets from 5 kw to 250 kw.

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BLUE STREAK ENGINE
Builder of Climax DIESELS and GENERATING SETS
CLIMAX INDUSTRIES INC.

WORTHINGTON-GAMON

LIQUID METERS

All Sizes All Types

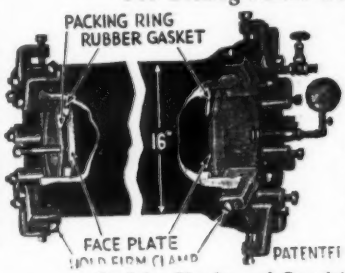
Worthington-Gamon Meter Co.

296 South Street Newark 5, New Jersey

"HOLD FIRM"

A NEW TEST PLUG

For Testing Mains Conveying



WATER GAS
OIL AIR

For testing cast iron, steel, transite, soil and concrete pipe lines, without the necessity of valves; test pipe as you lay them; eliminate open trench and hazards; special for testing reclaimed pipe, valves and fittings. Installed by any unskilled laborer; withstands 300 lbs. hydrostatic pressure, light in weight; same clamps fit many sizes of pipe. Made in all sizes. Used by the City of Chicago, contractors and municipalities.

Send for Circular and Complete Information

TEST PLUG MFG. CO. (not Inc.) SKOKIE, ILL.

The "Quinn Standard"

FOR CONCRETE PIPE

The Quinn Standard is known as the best the world over, wherever concrete pipe is produced and used. Backed by over 30 years' service in the hands of hundreds of Quinn-educated contractors, municipal departments and pipe manufacturers who know from experience that **Quinn pipe forms** and **Quinn mixing formulas** combine to produce the finest concrete pipe at lowest cost.

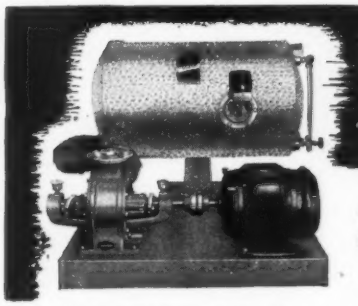
Quinn Heavy Duty Pipe Forms

For making pipe by hand methods by either the wet or semi-dry processes. Built to give more years of service—sizes for any diameter pipe from 12 to 84 inches—tongue and groove or bell end pipe—any length.

WRITE TODAY

Complete information, prices and estimates sent on request. Also manufacturers of Quinn Concrete Pipe Machines.

QUINN WIRE & IRON WORKS 1623 12th ST. BOONE, IA.



CONDENSATE RETURN *at its* BEST

Capacities to 150 G.P.M.
(Both Horizontal and Vertical)

APCO Horizontal Simplex Condensation Return Unit

These units are available in simplex and duplex types—designed for the automatic return to high and low pressure boilers of the hot water condensation from radiators, coils, etc. Catalogued in sizes ranging from 2,000 to 100,000 sq. ft. equiv. radiation. Larger sizes available.

APCO TURBINE-TYPE PUMPS

Apcos are ideal for the above service or any small capacity, high head duty. The one moving part, the impeller, is free running, therefore unaffected by heat expansion. Ability to maintain practically constant capacity against drastic pressure conditions is another of many distinctive features.

AURORA CENTRIFUGALS
for Every Pumping Job
HORIZONTAL SPLIT CASE
Single & Two Stage
SIDE SUCTION
VERTICAL
NON CLOG
SUMP
MIXED FLOW
SPECIAL DESIGN
Write for
CONDENSED CATALOG "M"
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Consult SWEETS

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AURORA *Always* PUMPS

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66 Loucks Street, AURORA, ILLINOIS

In

CLEVELAND

IT'S THE

HOLLENDEN

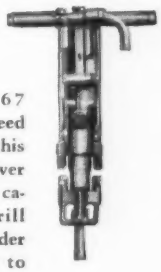
HOLLENDEN

1000 ROOMS WITH BATH
RADIO IN EVERY ROOM
SIX FINE RESTAURANTS
CENTRAL DOWNTOWN LOCATION
GARAGE ATTACHED

JAMES J. FITZPATRICK
GENERAL MANAGER

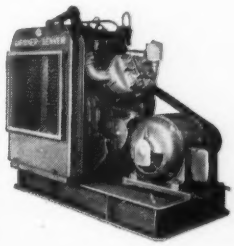
when you need "SECOND WIND"

■ Equipment that slows down or quits when the going gets too tough won't do for long-pull jobs. The Gardner-Denver equipment shown on this page has its "second wind" *built in.* It has the extra capacity to keep going . . . at high efficiency . . . regardless of ground or weather. For complete information, write Gardner-Denver Company, Quincy, Illinois.



With its 67 pounds of speed and power, this Gardner-Denver S73 has the capacity to drill faster in harder ground and to drill deeper holes without the handicap of excess weight. Yet this sinker uses no more air than the average 55-pound drill. Excellent holding characteristics enable the operator to maintain high drilling speed, hour after hour.

Broiling heat or bitter cold won't affect the performance of Gardner-Denver Portable Compressors. That's because their cylinders are *completely* water jacketed for sustained high efficiency, regardless of temperature or altitude. Complete water cooling, too, means less lubricating oil consumption.



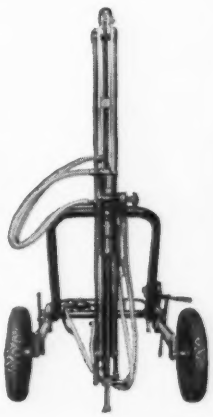
With its combination radiator and air-cooled intercooler, this Gardner-Denver "WB" Compressor is ideal where water is scarce or of poor quality. Evaporation of the cooling water is practically nil, so that water seldom needs to be added. Note the compact design.

GARDNER-DENVER

SINCE 1859

USE COMPRESSED AIR FOR SAFETY CONVENIENCE FLEXIBILITY

A full six-foot change, with something extra for odd steel changes, is readily handled by the Gardner-Denver UM99 Wagon Drill. Vertical holes can be drilled down to a rock face or at any angle with the fully adjustable U-bar of the UM99. The D99D drill blows deep holes efficiently.



NOW IT'S EAST BATON ROUGE PARISH . . .

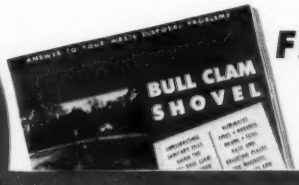
Another Community in Louisiana Uses the Drott Bullclam Shovel Method of Sanitary Fill

Refuse from the suburbs of Baton Rouge — Louisiana's state capital — is disposed of quickly, economically and to the complete satisfaction of its residents... by using the Drott Bullclam Shovel Method of Sanitary Fill. Operated by East Baton Rouge Parish, this type of fill eliminates long hauls, requires but little attention and does away with stench, smoke and the harboring places for rats, maggots and other menaces to health. All refuse is completely compacted and buried. Finished fill is a landscaped area. It's worth investigating . . . from every angle! Write for full information.

◀ Tons and tons of refuse here . . . but not even a tin can in sight! A completed section of the Sanitary Fill at East Baton Rouge Parish — photo taken after a year's operation.

◀ Completed trench (center) was dug entirely by the Drott Bullclam Shovel. Material obtained was used for covering of refuse after compacting (below). Drott Bullclam Shovel handles complete job — no other equipment required.

Operated by DROTT POSITIVE CLOSED HYDRAULIC SYSTEM • SMOOTH • QUICK • DEPENDABLE. Keeps dirt and air out . . . keeps oil in! Used successfully on Drott equipment for many years.



FREE

Get the Complete Story! Send for This Book—"Answer To Your Waste Disposal Problems . . . With the Drott Bullclam Shovel."

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DROTT MANUFACTURING CORP.
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HERSEY WATER METERS

are accurate and dependable recording instruments—built with watch-like precision of only the best grade materials. More than half a century of engineering experience has developed a Hersey Water Meter of simple design with low maintenance cost.

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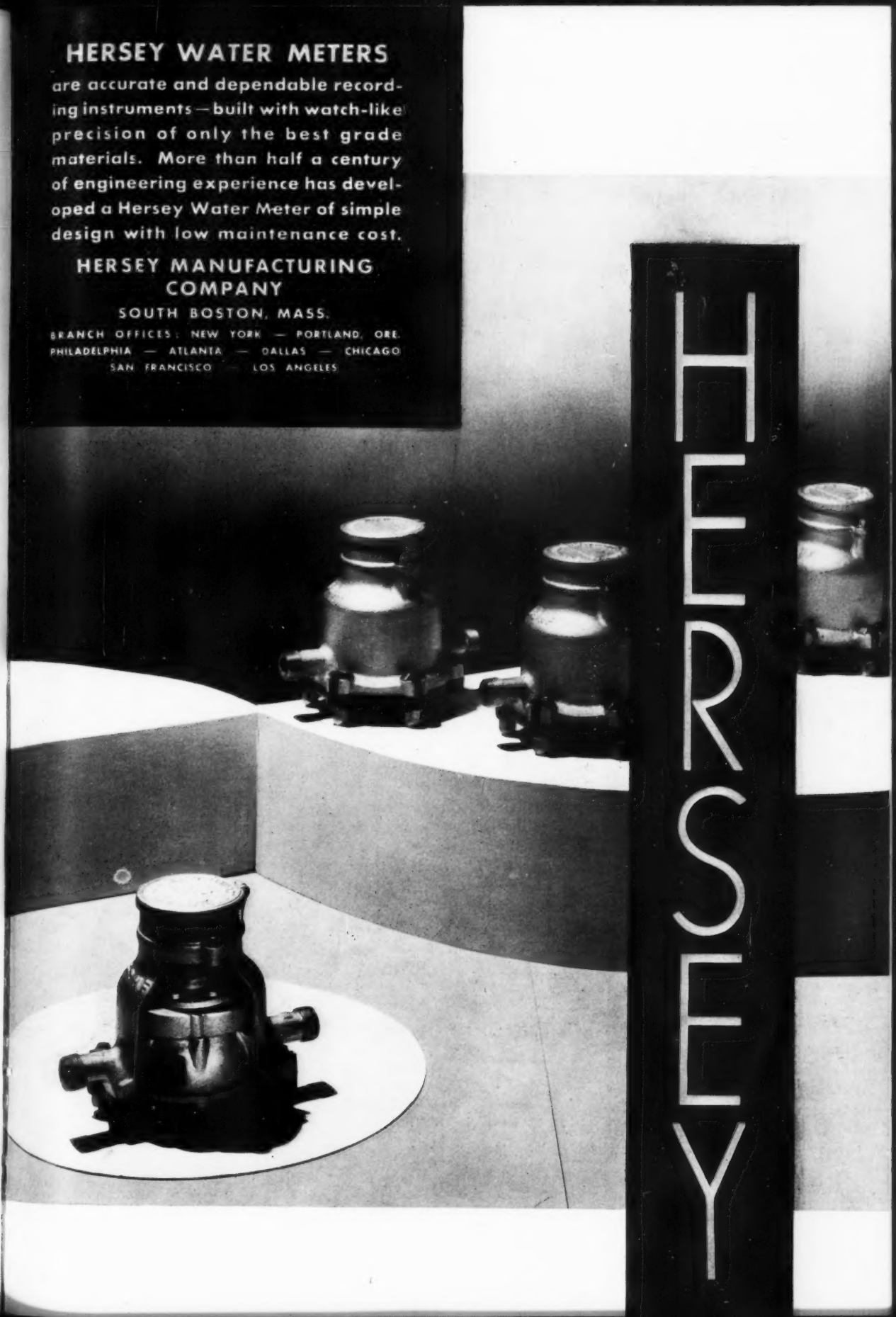

For Service You Can Count on — IT'S UNIFORMS OF

REEVES ARMY TWILL

Look For This Label In Your Uniforms and Work Clothes!

"FROM COTTON TO CUTTER"

UNIFORMS AND WORK CLOTHES stay better looking longer when they're made of Reeves Army Twill. Its high tensile strength assures rugged wearability. Vat dyed colors are fast to sun, water and perspiration and being Sanforized* it retains its smart tailoring even after repeated washings. Remember—over 90 million yards of this same cotton fabric helped equip America's fighting forces—exceeding Government specifications under the toughest combat conditions.

**Residual shrinkage less than 1%.*

THE REEVES FABRIC GROUP INCLUDES:

Reeves Army Twill • Glengarrie Poplin
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MADE OF FINE COTTONS

REEVES BROTHERS, INC.

54 WORTH STREET, NEW YORK 13, N. Y.

REPRESENTATIVES IN *Atlanta • Boston • Chicago • Dallas • Los Angeles • Philadelphia • St. Louis • Montreal • Toronto*

Pumping Concord's Water FOR 15 YEARS

. . . with only minor repairs!

Installation consists of two 2-stage Morris Centrifugal pumps, 6-inch suction, 6-inch discharge, connected in series, driven by Westinghouse 125 H.P. motors at a speed of 1740 R.P.M.; capacity of each unit 1145 gallons per minute with suction lift of 15 feet and discharge head 286 feet.

The third unit is a 3-stage Morris Centrifugal pump connected in series, driven by a 175 H.P. Sterling Dolphin gas engine, 1200 R.P.M., with a capacity of 1145 gallons per minute.

MORRIS CENTRIFUGAL PUMPS

In 1930, the contract for pumping equipment in the new Meadow Station at Concord, New Hampshire was awarded to the Starkweather Engineering Company of Newtonville, Mass. Three Morris Centrifugal Pumps were then installed.

Since that time, for more than 15 years, the Morris Pumps have given such excellent service, according to Mr. Percy R. Sanders, Superintendent of Concord Water Works, that the Town engineers recently ordered and now have in operation, a fourth Morris Pump for the main station.

ANOTHER EXAMPLE OF MORRIS SERVICE WITH EFFICIENCY

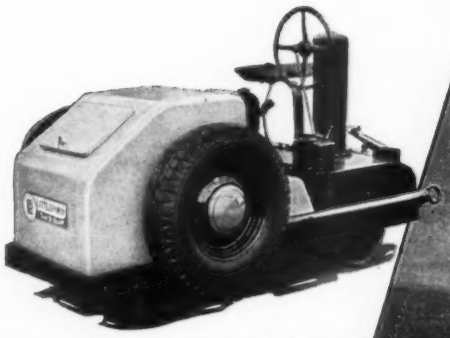
There is a Morris Pump for every job. Write us for specification and operation data best suited to your needs. No charge or obligation.

MORRIS MACHINE WORKS

BALDWINSVILLE, N. Y. **SALES OFFICES IN PRINCIPAL CITIES**

MORRIS *Centrifugal Pumps*

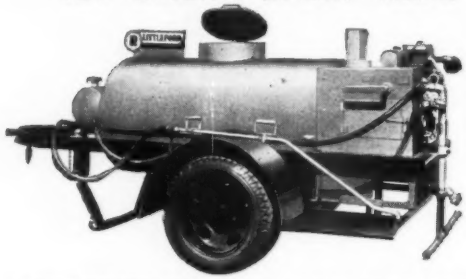
WHEN ROAD REPAIR IS NEEDED HERE'S THE EQUIPMENT FOR THE JOB

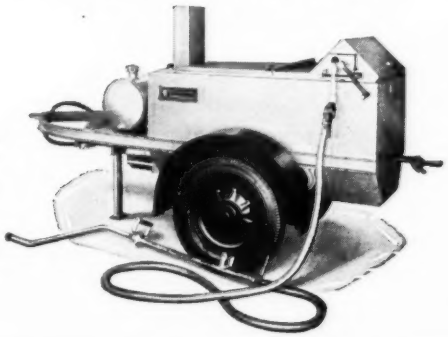


TRAIL-O-ROLLER

101 UTILITY SPRAY TANK

84-HD ASPHALT KETTLE





These Littleford Units are the modern efficient, low-cost operating units, designed for the big road-repair program ahead. The 84-HD is the fastest heating Kettle made today, having patented Littleford features—The 101 Utility Spray Tank combines three units in one—Trail-O-Roller is the portable roller that gives as much compaction as a five-ton tandem.

With units like these on the job, it's easy to get that repair job done permanently. Littleford Equipment has been tried and tested—make no mistake when you purchase your next repair outfit—make it a Littleford.

LB LITTLEFORD

BLACK TOP ROAD MAINTENANCE EQUIPMENT SINCE · 1900

LITTLEFORD-BROS., Inc.

500 E. PEARL ST., CINCINNATI 2, OHIO

KARDEX

"SIGNALS" TROUBLE SPOTS for instant visual analysis of high accident locations

KARDEX SIGNALING MEANS CONTROL

That's why accident locations can be "mapped" so graphically with the *simplified* Kardex method. All street intersections are listed on individual Kardex forms; when an accident is reported the Graph-A-Matic Signal is moved on the scale. Descriptive information such as date and time, kind of location, weather conditions, severity, type, and number of persons injured are posted to the conveniently designed Kardex insert. The control signal visually distinguishes, *on the record*, the location in which accidents most frequently occur—you know instantly where corrective action is needed!

Kardex is the *faster* filing method; you turn at once to a desired location, name or item, because identifying information is right on the visible margin. Key information is *centralized* for you, eliminating the need for consulting separate lists or data. And—security against fire damage is available as an integral part of the Kardex cabinet—"Protection-at-the-Point-of-Use!"

Administrative officials are finding that Kardex serves them best in a wide variety of instances where simplified, really effective record control is needed: central information files, bridge records, highway maintenance, personnel, cost records, drivers' responsibility compliances.

Why not see for yourself how Kardex can bring new usefulness, new economy, *greater operating ease* to your records? Call your nearest Remington Rand representative, or write to Systems Division, 315 Fourth Avenue, New York 10, N.Y.

Simplify and save ... with KARDEX

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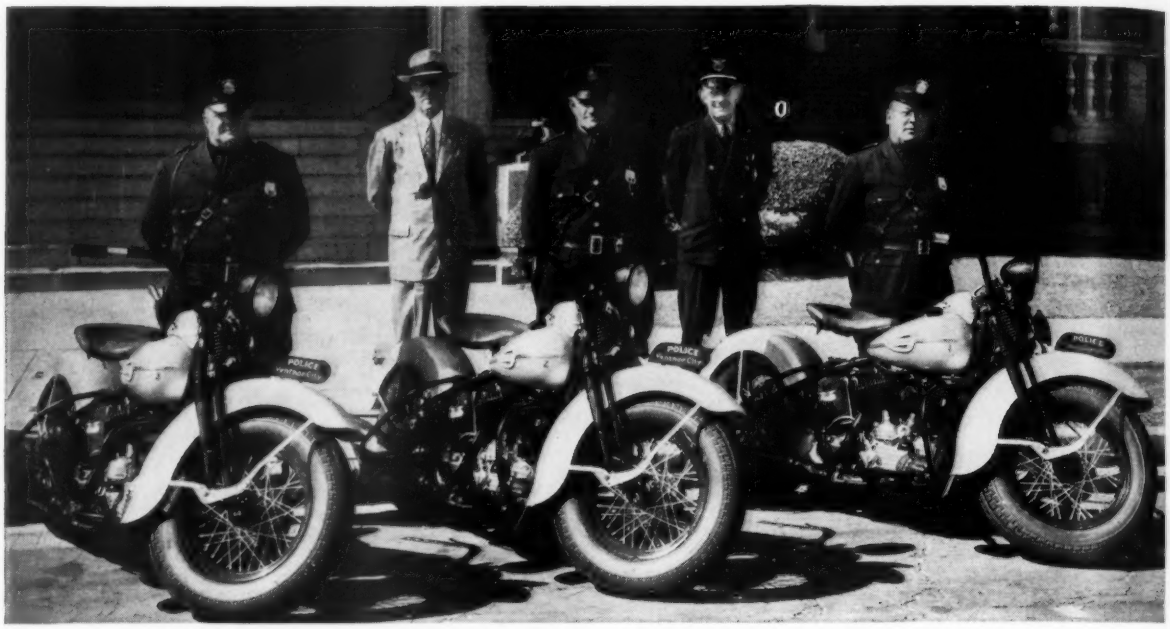
Remington Rand

THE FIRST NAME IN BUSINESS SYSTEMS

Ventnor City, New Jersey, Police Squad Uses HARLEY-DAVIDSONS Exclusively!



Ventnor City's Mayor and Police Chief are proud of its well-equipped motorcycle squad. Shown here, from left to right, are Officer S. Summerville, Mayor Harry S. Hodson, Officer J. I. League, Chief of Police M. C. Mower and Officer H. Kennedy.

Most Effective in Meeting Today's Increased Traffic Control Demands

AS in many cities the country over—whether large or small—the motorcycle squad of Ventnor City is equipped with Harley-Davidsons exclusively. Traffic experts recognize that no other method matches motorcycles for efficiently handling so many phases of traffic control work.

With traffic problems at an all-time peak—the menace of mounting injuries and deaths demands greater effort in dealing with accidents *before they occur.* Increase the effectiveness of *your squad* by equipping them with Harley-Davidson Police Motorcycles and Servi-Cars. Through their outstanding dependability, economy, and efficiency, they have established remarkable performance records in traffic control and accident prevention. Call in your Harley-Davidson dealer today . . . get complete information about the superiority of the new 1947 Harley-Davidson Police Motorcycles.

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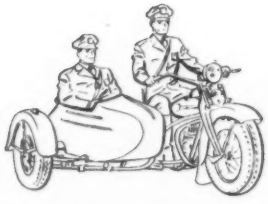

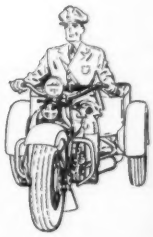

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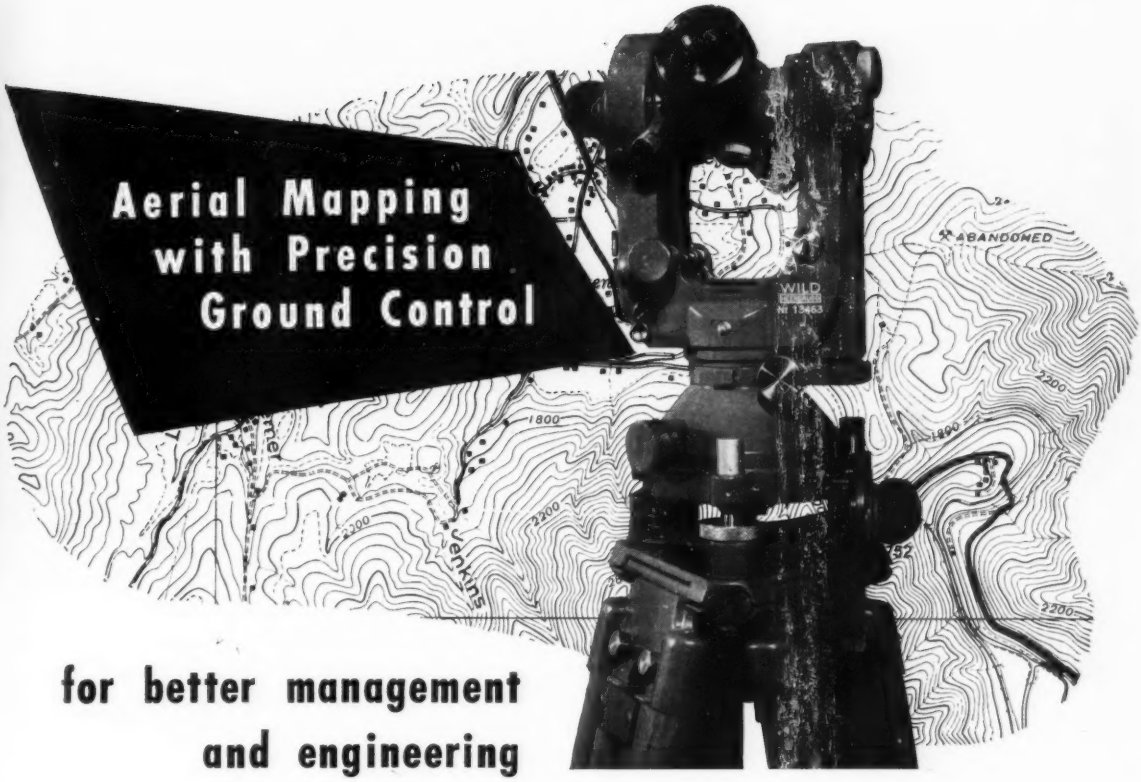
Police Motorcycles



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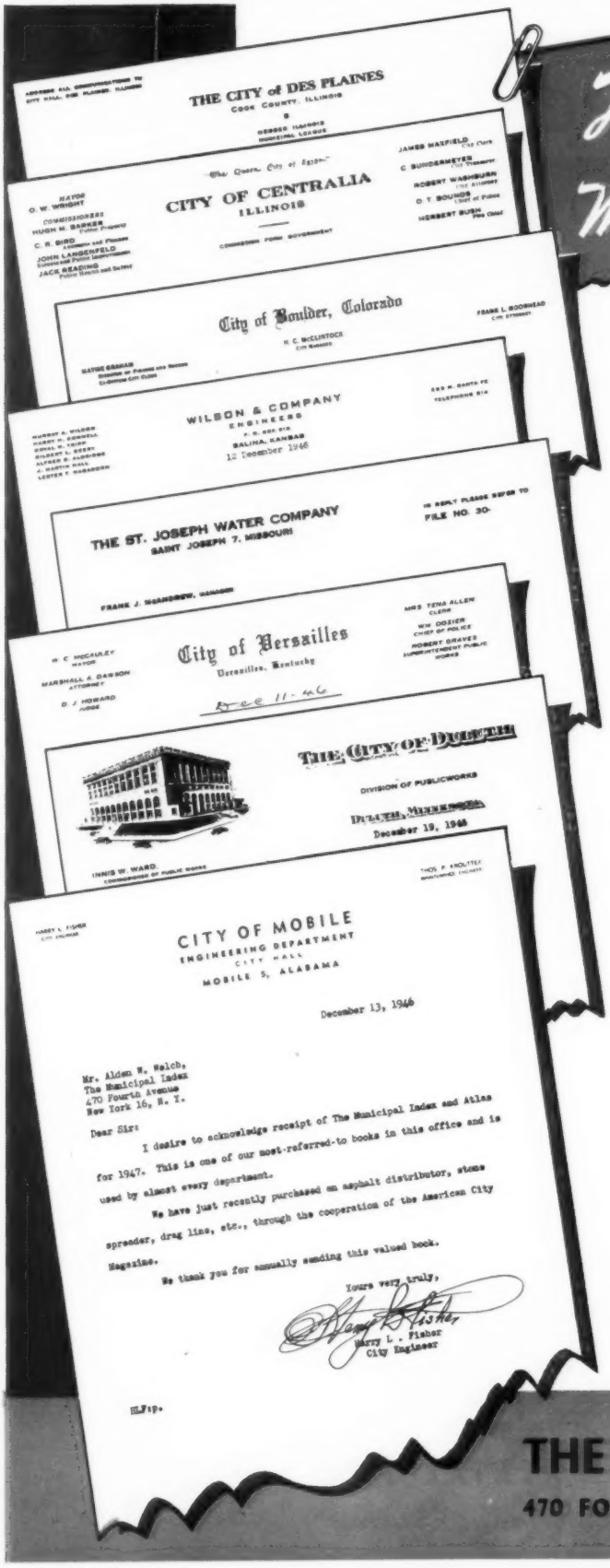
THE CITY of DES PLANES
Cook County, Illinois

CITY OF CENTRALIA
ILLINOIS

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12 December 1946

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THE CITY OF DULUTH
DIVISION OF PUBLIC WORKS
December 19, 1946

CITY OF MOBILE
ENGINEERING DEPARTMENT
CITY HALL
MOBILE 5, ALABAMA

December 13, 1946

Mr. Alden H. Welch,
The Municipal Index
470 Fourth Avenue
New York 16, N. Y.

Dear Sir:

I desire to acknowledge receipt of The Municipal Index and Atlas for 1947. This is one of our most-referred-to books in this office and is used by almost every department.

We have just recently purchased an asphalt distributor, stone spreader, drag line, etc., through the cooperation of the American City Magazine.

We thank you for annually sending this valued book.

Yours very truly,

Harry L. Fisher
City Engineer

HLFtp.

Thanks for The Municipal Index

Write Hundreds of Municipal Officials

and THE MUNICIPAL INDEX says thanks to you who tell us of the types of equipment and materials your cities are likely to require this year. Picking at random 100 of these reports from Water Supts., City Engrs., City Mgrs., Mayors, etc., we get a glimpse of the tremendous volume of municipal work which the war backed up. Below are the fields in which they name specific products needed, and the numbers of cities, out of 100 reporting, that need the products.

Equipment For	Out of 100 Cities
Water Supply	74
Sewage Treatment	51
Streets	58
Waste Disposal	38
Lighting and Power	34
Airports	17
Fire, Police, Traffic, Parks	49
Office Equipment	31

The MUNICIPAL INDEX is always glad to furnish city officials and consulting engineers with catalogs and prices on products of all kinds for municipal improvements.

THE MUNICIPAL INDEX
470 FOURTH AVENUE, NEW YORK, N. Y.

Your Best Bet for Levee Work
INTERNATIONAL Diesel Crawlers

Efficient Dirt Moving Hems in Old Man River

Three International TD-18 Diesel Crawlers moved 150,000 cubic yards of black gumbo with some sand and clay, in 60 calendar days. They were rebuilding a levee near West Memphis, Arkansas, on the Mississippi. Hauls were as long as 1200 feet, daily yardage as high as 30,000. And they loaded at small borrow pits *without pusher assistance* to get capacity loads in 10-yard scoops.

Performance like this points up the superiority of International Diesels for earth-moving. Their 4-cyle valve-in-head engines provide dependable, economical power. Perfect weight distribution, adequate ground contact, rugged construction and extremely durable moving parts give them the ability to handle the toughest earth-moving jobs with ease.

Their built-in, quick-starting system means that they waste no time getting to work. And the little time required for maintenance means *more productive hours in every day.*

This International TD-14 with Trail-builder is shown leveling a haul road on approach to the levee. It also dressed the levee to grade and leveled off the dirt deposited by the three TD-18's and scoops. This is a fast, powerful and easy-to-handle Diesel Crawler —ideal for this work.

Yes sir! Your best bet for levee work, as for other earth-moving, is the International Diesel Crawler. Get the latest information, facts and figures on International Crawlers, Wheel Tractors, Power Units and Diesel Engines now in production, from the International Industrial Power Distributor near you.

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Behind this nationwide, worldwide acceptance is the constant activity of a forward-looking organization, dedicated to meeting tomorrow's business needs. Right at this minute, highly trained field men are talking with business men, analyzing new problems of accounting and bookkeeping, exchanging and coordinating their knowledge with other Burroughs representatives. Engineers and scientists are searching varied fields of science, from color design to electronics, for ways to make still finer, still more useful Burroughs machines.

WHEREVER YOU GO— YOU SEE BURROUGHS MACHINES®

Product developments are taking place that will breathe new life into old jobs—do them even better than did the fine Burroughs machines of the past . . . so you'll continue to see Burroughs machines wherever you go!

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WABASH RAILROAD COMPANY is an important user of many types of Burroughs equipment. Illustrated is an installation of modern Burroughs Payroll Accounting Machines in the Decatur, Illinois, office.

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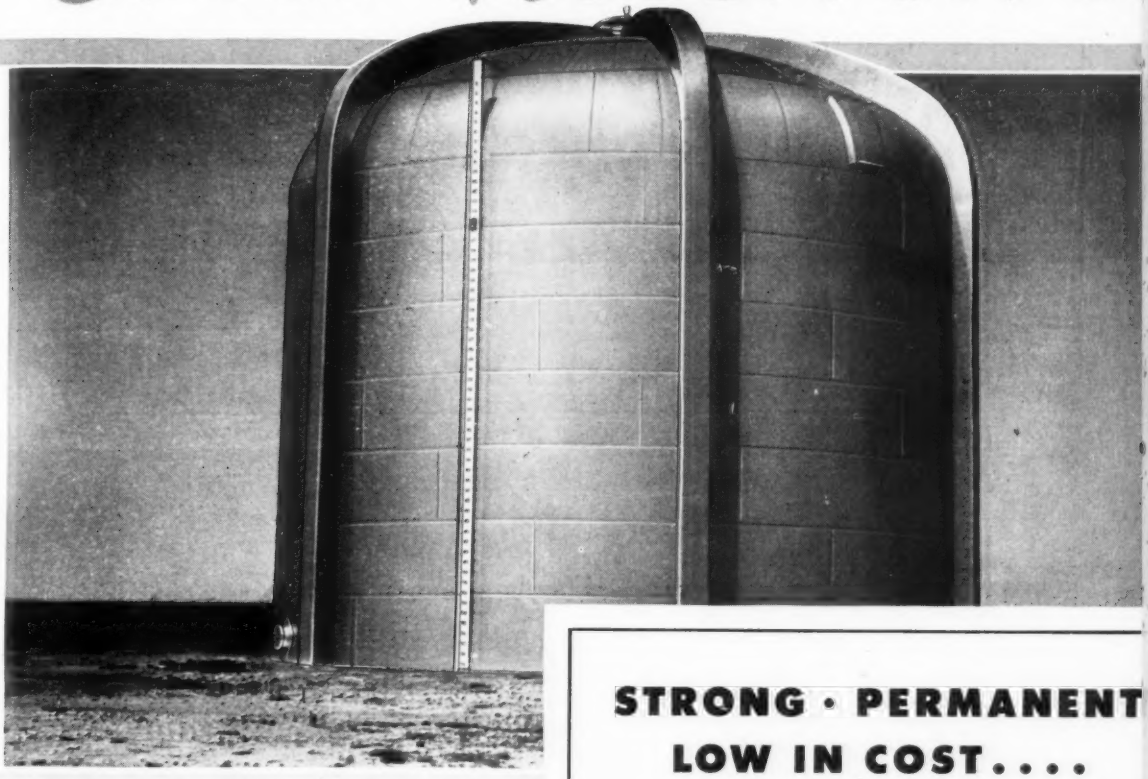
FIGURING, ACCOUNTING, STATISTICAL AND CASH REGISTERING MACHINES
NATIONWIDE MAINTENANCE SERVICE • MACHINE SUPPLIES

PITTSBURGH · DES MOINES

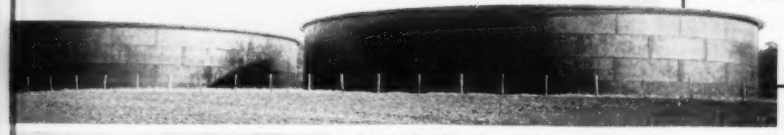
Steel Reservoirs



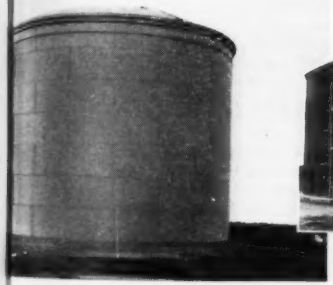
2,200,000-gallon steel reservoir, with ellipsoidal roof and ornamental pilasters. Diameter 80', height to roof 51'. Midland, Tex.

STRONG · PERMANENT
LOW IN COST....

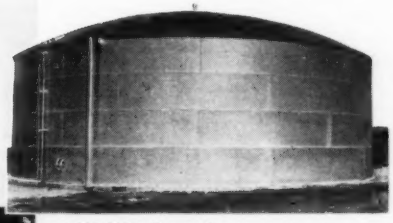
for economical water storage



Two 3,000,000-gallon steel reservoirs, diameter 144', height 25'. Berryville, Va.



1,500,000-gallon steel reservoir, with ornamental cornice. Capitol Heights, Md.

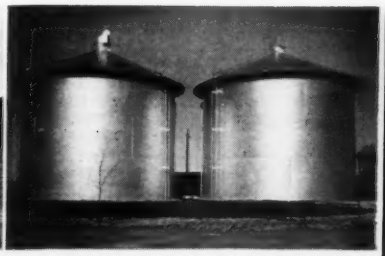


1,000,000-gallon steel reservoir, diameter 84'3", height 24'10". Bottineau, N.D.

Steel—with its strength, permanence and low maintenance—offers the best service and greatest overall economy in water reservoir construction.

Steel Reservoirs by Pittsburgh-Des Moines provide these advantages fully—plus the design engineering experience, modern fabrication, expert erection and guaranteed satisfaction typical of this responsible organization. *Write for a quotation on your projected reservoir requirements, of any type or size!*

-gallon steel reservoir, ellipsoidal roof;



Two 100,000-gallon steel reservoirs, cone roof;

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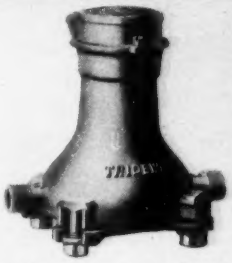

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Trident Meters are

ACCURATE AND SENSITIVE

Trident Meters are not only accurate over a wide range of flows, but retain their sensitivity to low flows for the longest period of time.

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Volume LXII Number 2
FEBRUARY 1947
The American City

Great Britain's New Town and Country Planning Bill

A brief analysis of this important measure with comments secured by *The American City* from four British leaders.

A BILL depriving landowners of the right to build "unless the building is in accordance with proper planning requirements" and imposing a "development charge to cover any resulting increase in land values," was introduced in Parliament last month by Great Britain's Labor Government.

According to an accompanying White Paper, this "Town and Country Planning Bill, 1947," will set up a new planning system "which for the first time makes practical such projects as the reconstruction and redevelopment of old towns, the preservation of green belts, provision of open spaces in overcrowded areas, the allocation of land for factories, etc."

The White Paper declares that this has been impossible in the past because of the inflated compensation payable to landlords by local authorities and because of the rigid planning system that gave too much power to local officials and not enough to those ministering to national needs.

Compensation to Landowners*

A sum of £300,000,000 will be set aside as a compensation fund for hardship cases of owners whose land will have been depreciated in market value by having their development rights cancelled. It is estimated that about 15% of the landowners in Britain will be affected by the bill, mainly those owning land in rural areas near cities and towns.

In acquiring sites by "compulsory purchase" for housing, public works, or redevelopment purposes, British local authorities have generally been required to pay a high price for the "development value" of the land. This practice has caused the public to suffer either by excessive costs or by the postponement or abandonment of many desirable projects.

Haphazard Building Forbidden

Also, because local authorities have not been able to afford to pay heavy compensation for loss of development values, they have had to allow haphazard building, and suburbs have spread in a mass of houses unbroken by open spaces. There has been a tendency to site schools, clinics, and libraries where land was cheapest, often at great inconvenience to the people who use them. The bill aims to solve this problem.

Under the terms of the bill, no future development of any kind may take place "without permission," i.e., the landowner is free to go on using his land for its existing use (and, if for special reasons, he is restricted from doing so, compensation is payable), but the question whether it may be developed will be governed by considerations of the community's interest. When permission to develop is refused, no compensation will be payable in future (except in a limited range of cases mentioned in the bill). When development is permitted, any resulting increase in land value is to be collected in whole or in part by the state, in the form of a development charge, which must be paid or secured before the development is carried out. Increase in land value which accrues without development is left with the owner.

COURTESY BRITISH INFORMATION SERVICES

The Right Honorable Lewis Silkin, M. P., Minister of Town and Country Planning.

Local Planning Made Compulsory

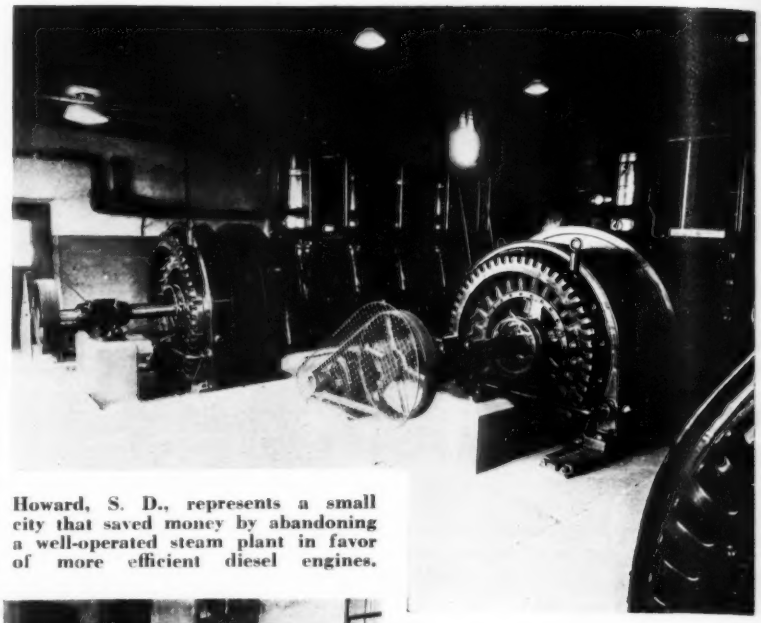
Two other features of the measure are of special significance. Local authorities are required to carry out a survey of their area and to prepare a plan within three years, which must have a public inquiry and be submitted to the Minister of Town and Country Planning for approval. Also, local authorities are given wider powers to carry out development themselves and are no longer confined to development which private enterprise will not undertake.

Knowing of the interest of many American local officials and city planners in British procedures, THE AMERICAN CITY cabled, when this bill was introduced last month, to four persons competent to comment on it, requesting their viewpoints and criticisms of the measure. Excerpts from the replies are printed on pages 94 and 95.

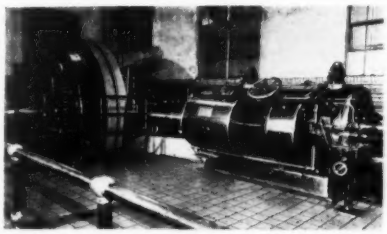
* As many readers of THE AMERICAN CITY are aware, "compulsory purchase" in British terminology means condemnation by eminent domain. By a "town" is always meant an urban area, and often the term is used to cover a city, in the sense of a large urban settlement. "Betterment" means technically an increase of value due to public actions, but is sometimes used more loosely to include increments of value by growth of population, etc. "Compensation" means either the price paid for land acquired or the sum paid for depreciation of value caused by planning restrictions. "Development," in this bill, means not only changing land from agricultural to building purposes, but adding to buildings on a site, or any change of the use of the buildings (e.g. from house to retail trade).

Diesel Dividends from Two Electric Plants

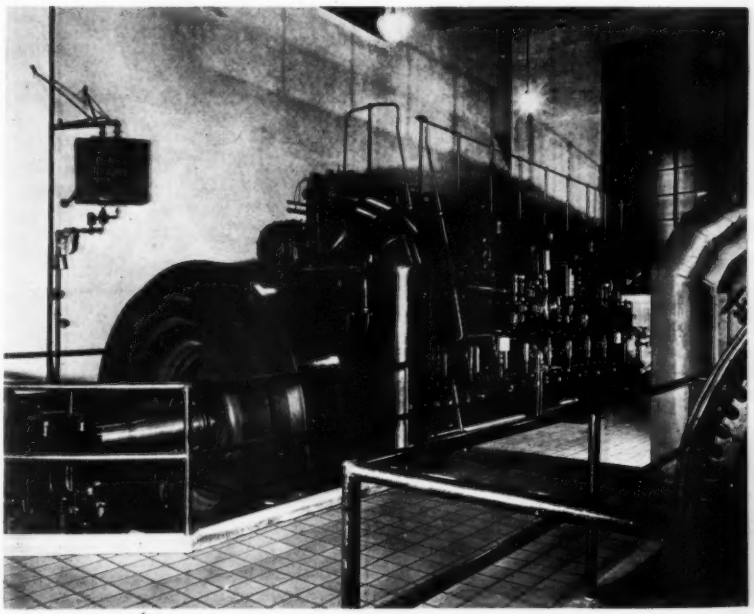
Modern diesel generators replace inefficient generating equipment at Marshall, Minn., and Howard, S. D.



Howard, S. D., represents a small city that saved money by abandoning a well-operated steam plant in favor of more efficient diesel engines.



There was absolutely nothing wrong with this old steam-generating equipment used at Marshall, Minn., with its reciprocating engines (left), except that more modern diesel engines (as shown below) have made them obsolete.



IT pays to spend money the right way. As one city manager said, it's not how much money you spend, but what you spend your money for that counts. The two midwestern communities of Marshall, Minn., and Howard, S. D., are excellent illustrations of that saying.

Prior to 1932, Marshall, Minn., had an old but, nevertheless, dependable steam generating plant that used a set of three reciprocating engines to power. There was nothing particularly wrong with these engines; they were not difficult to maintain and produced power at an average cost of approximately one cent per kw-hr. But in 1932, officials of the Marshall Heat, Light, and Water Commission realized that some additional peak load capacity would have to be supplied and purchased a 5-cylinder 875-hp diesel to furnish this peak load supplement.

That first diesel was only an introduction. It shortly became the mainstay of the plant and has produced the bulk of the energy since. Of the 8,111,200 kw-hrs. generated last year, the diesel setup, now grown to three engines, produced 6,216,200 to the steam plant's 1,895,000; a ratio better than three to one.

The reason for this is fairly obvious. Generation cost by diesel power for the fiscal year ending March 31, 1946, averaged 0.66 cents a kw-hr., or one-third less than the cost by the steam plant. The difference represented a savings of $20,513.

Operation of the steam plant goes back to 1918. The population of Marshall in 1933, when the first diesel engine went into operation, was 3,250; today, it is more than 5,000. The steam plant has an auxiliary use in the central heating system, which uses exhaust steam from the engines. This system serves public buildings, schools, churches, commercial buildings, apartments, and a few water heaters. The steam plant is shut down completely for the two or three months of hot weather and runs at low capacity for two months in the spring and fall.

The Marshall plant, as it stands, represents a valuation without depreciation of $717,658. The heating system is valued at $64,458; and the water department, valued separately, comes to a figure of $233,443. The power plant has been out of debt for some time. Receipts from the sale of electricity last year totalled $164,992, of which $69,587 was earnings. Water department

sales last year were $34,016, with earnings above operating costs of $13,240. Heat sales were $31,097, with earnings at $5,501. The plant has a surplus of $258,000 in war bonds and $40,258 in cash. In addition, it furnishes "free service" totalling 485,980 kw-hr. This includes city water pumping, street lighting, and electricity for many other municipal purposes.

Howard, S. D., Trebles Earnings

When Howard, county seat town of 1,200 in the "Pheasant Paradise" of South Dakota, replaced steam with diesel power in its municipal electric generating plant, it trebled its annual earnings. The old reciprocating-type steam engine plant had been earning about $5,000 a year over expenses; its diesel successor—three engines supplied by Fairbanks, Morse and Company, with alternators and auxiliary equipment—netted $15,662 last year. Diesel plant earnings averaged $14,681 yearly for the last eight years.

It took the steam plant twelve years to retire a $26,000 debt. The diesel plant in its ten years of operation has paid on the investment from earnings a total of $86,500, of which $50,500 was used in retirement of revenue certificates. The plant expects to be in the clear in another year.

Electric service began in Howard about 1911 when a flour mill owner sold the townspeople the surplus energy generated by the mill plant. In 1914 the community bought the power plant and the distribution system. The generating equipment that they acquired consisted of two 100-hp boilers and a Corliss steam engine with a belt-driven, self-excited 75-kw generator. Periodically, new units were added to this; in 1926 all indebtedness was paid off.

Nine years later, the community authorized a survey to be made of the plant. This disclosed that it was earning about $5,000 a year over and above its operating expenses. It showed further that by using diesel power the plant would earn easily more than $30 per day. That would be $10,950 a year —$10,980 in leap years. This looked good to Howard. It made the change.

The diesel engines installed were a 4-cylinder 300-hp engine and a 2-cylinder 150-hp engine. These produced earnings that paid their cost in less than five years. A third 450-hp diesel, with six cylinders, was installed in 1946. The three alternates have a rated combined capacity of 597 kw, 100% above last year's peak load of 220 kw.

The forecast of **$30-per-day earnings** has proved conservative. Revenue and earnings by years from 1938, with average daily earnings for each year, are:

Year	Revenue	Earnings	Av. Daily Earn.
1938	$21,340	$13,220	$35.21
1939	25,325	13.881	38.02
1940	2o,101	13,8.8	37.84
1941	27,164	14,702	40.27
1942	27,037	14,546	39.84
1943	28,403	14,990	41.06
1944	30,722	16,590	45.33
1945	33,722	15,662	42.90

These averages level off to $40.19 per day through the entire period, or one-third greater than the forecast.

The plant absorbs the cost of supplying energy for lighting the plant building, the skating rink, the fire alarm system, municipal Christmas trees, and special events of a community nature. For street lighting, the council makes a tax levy—nearly $2,000 last year; and the plant absorbs the excess. The plant building contains the fire department, the council room, the auditor's office, the water department office, and the jail.

A board consisting of the mayor and two members of the council directs the power plant, the water department, and the sewer system. D. D. Tripp, mayor for ten years, retired in May 1946. Councilmen forming the light and water committee are Theodore Hanson and M. E. Lee. H. C. Lenhart is superintendent. Robert Trebble is city auditor. L. L. Robbins is the new mayor.

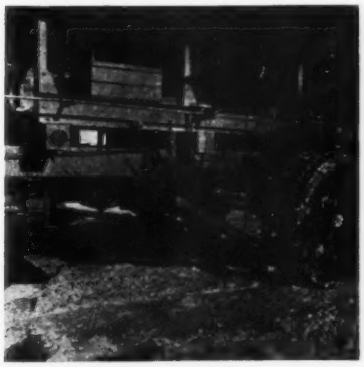
Newark, N. J.

SALTS a STORM

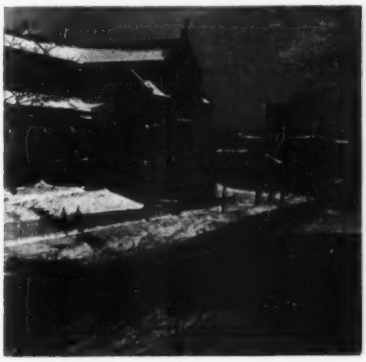
BY SPREADING rock salt on all traffic arteries, hills, and intersections, Newark's department of streets is able to do a bang-up job of snow and ice removal in record time, according to Ralph A. Villani, director of the department of parks, and John S. Flockhart, engineer-in-charge of the bureau of street cleaning.

John Del Guercio, main supervisor of this snow and ice removal job, reports that the pavement is free of snow or ice and safe for the traveling public fifteen minutes after rock salt is spread on the roads. Trucks carrying from 7 to 7½ tons of rock salt can spread their load in about twenty minutes because of specially designed rotating discs which distribute the salt evenly in a wide arc at a rate of about ¼-pound per square yard of street. In snowfalls up to 4 inches, the salt alone is sufficient to provide a bare driving surface, and the snow plows need not to operate. In falls of 8 or 9 inches, plows remove the upper layers of snow from the streets, and rock salt treatment follows to melt the remaining thin coating of snow before it can freeze and bond to the pavement.

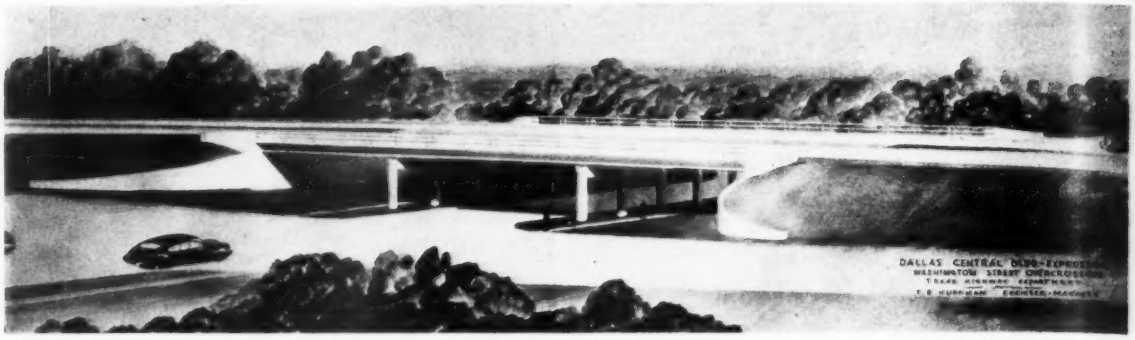
Walking up. This Newark hill was considered unsafe during the storm.



Salt falls from containers onto a rotating disc that distributes it.



Fifteen minutes after the salt was applied, the street was free of snow.



Sketch of proposed expressway underpass at Fitzhugh Avenue.

First Expressway for Dallas

CENTRAL Boulevard Expressway will perform two important functions for Dallas. First, it will tie together parts of the city that have been laid out in independent sections. Secondly, it will furnish smooth and rapid access to the heart of the city by truck and passenger traffic.

This project, entering the construction stage, is 10.2 miles long, extends entirely across the city in an approximately north-south direction, and will form part of U. S. Highway 75, which leads north from Dallas into Oklahoma and southeast from Dallas to Houston, thus connecting the two largest cities of Texas.

Use Railroad Right-of-Way

Central Boulevard will follow the old right-of-way of the T. & N. O. Railroad for the greater part of its length. This line almost bisects the part of Dallas north of the central business district and will serve a large part of this main population area, as well as be a direct route to the central business district for traffic entering the city from the north on U. S. 75. To the southeast from the business district, the route is on a direct line to the point of entry of U. S. 75, and will also serve a section of the city where its growth has been hampered by the lack of through streets to the business district.

The possibility of acquiring the railroad right-of-way for Central Boulevard made it unnecessary to study alternate locations. The cost of right-of-way is small, involving only a low-grade residential-type area. Its alignment is good, the maximum curve being two degrees. It will require only a few grade

By DOUGLAS A. NETTLETON
Urban Designing Engineer
Dallas Urban Expressway Office
Texas Highway Department

separations, since many of the existing streets do not cross the railroad.

Traffic movement on these, at present, dead-end streets will be greatly improved because they will connect to the service streets which will parallel the express roadway.

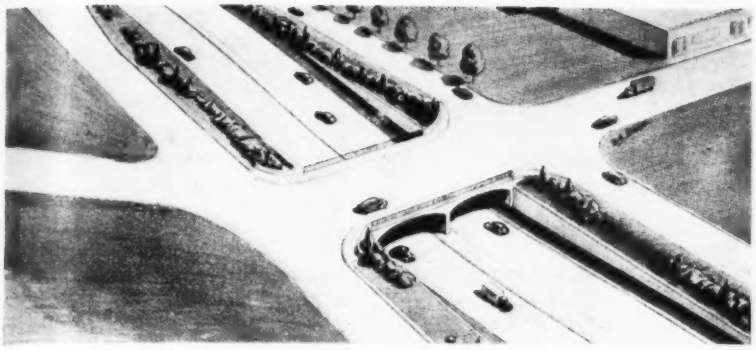
Traffic Count Studies

A traffic count made by the State Wide Highway Planning Survey in 1941 shows a total daily traffic on the present U. S. Highway 75 of 6,440 vehicles at the northern city limit, 22,400 vehicles at the north edge of the central business district, 19,000 vehicles at the south edge of the central business district, and 4,840 vehicles at the the southern city limit. With the maximum hourly rate figured as one-tenth of the 24-hour volume, the count showed a flow of 2,240 vehicles per hour to the north and 1,900 to the south at the edges of the business district on the present Highway 75. A traffic cordon count, made by the city of Dallas in June 1946, showed the number of vehicles entering and leaving the central business district between the hours of 6:30 a. m. and 7.30 p. m to be 60,443 to the north and 45,273 to the south. The peak in total traffic occurred between 5:00 and 5:30 p. m. and was 80% heavier than the average traffic during the entire 13-hour period. Applying a factor of 1.8 to the average hourly rate gives a maximum hourly traffic of 8,350 vehicles to the north and 6,270 to the south. According to a Public Roads Administration analysis, a four-lane divided highway with 10% commercial vehicles and rolling grades has a maximum capacity of 1,155 vehicles per lane. Assuming two-thirds of the total traffic to be in one direction, the traffic capacity of a four-lane divided highway is 3,465 vehicles per hour. Assuming a 40% increase for a six-lane divided highway, it has a capacity of 4,851 vehicles per hour. Thus, Central Boulevard, with six lanes north of the business section and four lanes south, will have a capacity equal to more than half of the present traffic on all the streets leading north and south from the business district.

From the south end of the project for a distance of 2.65 miles, there will be two 24-foot roadways divided by a 4-foot 8-inch median strip with 10-foot shoulders. For most of this the express roadways will be paralleled by service streets 32 feet wide. The main cross streets, about every fifth street, will be carried across the expressway by grade separation structures. The remainder of the cross streets will connect with the service streets.

The downtown section, having a length of 1.95 miles, is at the east edge of the central business district. This section consists of two separate streets about two blocks apart with widths of 66 feet over the greater portion of their lengths. Should future traffic warrant the cost of an express-type road in this section, it could be built as an elevated structure along the railroad track between the two roadways which are to be built in the present program.

An expressway section will extend north from this point for a distance of 3.6 miles. This section will be similar to the south expressway section except that the two express roadways will be 36-feet wide and the median strip will vary in width from 4 feet, 8 inches to 12 feet.



This is how the underpass at Knox Street will look from the air.

From here to the end of the project, a distance of two miles, two service streets 32 feet wide will be constructed. There will be a parkway 125 feet wide between these service streets, which will permit the future construction of two 24-foot express roadways between the service streets.

Design Factors

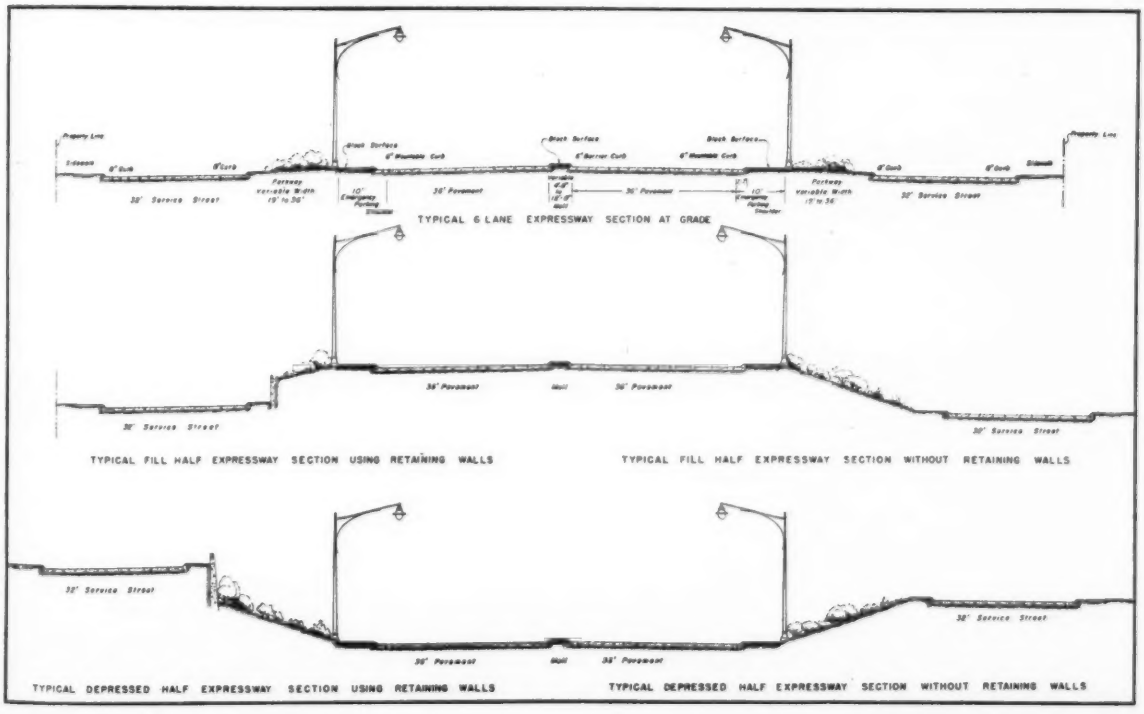
The express roadways are designed for a speed of fifty miles per hour, and have a rolling grade line close to the existing ground, except at grade separation structures. On either side of the grade separations, short lengths of grades of about 4% are used. Heavy trucks will be able to negotiate these ascents with little loss of speed, and that loss will be quickly regained on the descents. Vertical curves at the summits provide a sight distance of 400 feet. The maximum horizontal curvature is 2 degrees, and a minimum sight distance of 400 feet is maintained around these curves. A super-elevation of ¼-inch per foot is used on 2-degree curves, and no super-elevation is used on 1-degree curves. It is desirable from an appearance standpoint to keep the super-elevation to a minimum, and the amount used is considered safe for the design speed of fifty miles per hour. Transition spirals will not be used because of the small degree of curvature and the small super-elevation.

Pavement of the express roadways will consist of a reinforced concrete slab of 9-inch uniform thickness which is placed on an asphalt membrane. Before placing the asphalt, the subgrade is to be scarified to a minimum depth of six inches and will be recompacted at a moisture content equal to 95% of that required for maximum density. The subgrade material is principally a gray clay, which is subject to considerable swelling due to changes in moisture content. The asphalt membrane is expected to prevent the entrance of surface water to the subgrade and thereby hold its moisture content fairly constant. The service streets have a similar pavement.

A mountable curb, 6 inches high, is used along the outside of the express roadways. The shoulders will be surfaced by two applications of asphalt, each covered with aggregate. The aggregate in the first application will have a maximum size of 2½ inches, and ½ inch in the second application. This shoulder is intended for emergency use only. The hard surface will make its use possible in any kind of weather, but the rough surface will discourage its use as an extra lane. The base for this surface will consist of 4 inches of soil-asphalt on a 4-inch compacted depth of select borrow. The roadways will slope to the outside curbs for drainage, and inlet castings in the curb face will connect directly to a 12-inch pipe.

The median strip curbs are non-

Typical cross-section of proposed expressway construction.


TYPICAL 6 LANE EXPRESSWAY SECTION AT GRADE
TYPICAL FILL HALF EXPRESSWAY SECTION USING RETAINING WALLS
TYPICAL FILL HALF EXPRESSWAY SECTION WITHOUT RETAINING WALLS
TYPICAL DEPRESSED HALF EXPRESSWAY SECTION USING RETAINING WALLS
TYPICAL DEPRESSED HALF EXPRESSWAY SECTION WITHOUT RETAINING WALLS

mountable with a height of 6 inches. Their faces will have recesses, painted white with beads set in the paint. These recesses are shaped to reflect the light from head lamps and so reveal the curbs at night. The space between the median strip curbs will be seeded for grass.

Lighting for the express roadways will be by 10,000-lumen incandescent luminaires, mounted 28 feet 3 inches above the pavement, and 6 feet in from the outer curbs. The luminaires will be suspended from 15-foot masts on standards located at the outer edges of the shoulders and at an average spacing of 315 feet along both outer curbs. This will give an average intensity of light on the roadway of 0.44 foot-candles. This is somewhat below the intensity recommended for urban highways by the Illuminating Engineering Society, but it is considered sufficient in view of the fact that pedestrians will not be permitted to cross the express roadways. Cost of installation and operation of the lighting system is to be borne entirely by the city. Electrical cables for the lighting will be parkway cable laid underground.

There will be a total of twenty-two grade separation structures in the entire project, of which three are for railroads and eighteen are for streets. One underpasses both a street and a railroad. Wherever possible, the expressway roadways go under the city streets. The underpass permits full visability for traffic at the intersections between the service streets and the cross streets and avoids approach fills, which cut off light and view from the ground on either side. The underpasses are also considerably lower in cost because of the greater length required for the overpasses in order to fulfill minimum requirements for visibility and light at the intersections.

The construction of a new horseshoe-shaped storm sewer below the north expressway makes it possible to use underpasses for most of the separation structures in this section. This sewer will have a maximum width of 12 feet and will discharge through a new shaft into an existing storm sewer tunnel. The necessary depth of the horseshoe sewer is such that it will be cheaper to construct it by tunnelling rather than by open cut. The tunnel method of construction will avoid interference with the foundations of the structures and possible settlement of the backfill below the roadway. The new tunnel will be in a formation of soft rock, known locally as Austin Chalk. At a number of the grade separations, particularly at the south end near the Trinity River, overpasses must be used because drainage of underpasses by gravity would either be too costly or impossible at times of high water in the Trinity River. Pumping for underpass drainage was not considered satisfactory because of the possibility of a mechanical or power failure, which would result in flooding of the expressway.

In general, rigid frame concrete structures are used for the underpasses. These will have a center support in the median strip where the two express roadways are 36 feet wide and will have a clear span where the two express roadways are 24 feet wide. The overpasses generally have additional spans besides those over the streets, and continuous steel beams are used for these structure. The structures are designed for H20-S16 loading, which is a 36-ton truck and semi-trailer.

Right-of-way for the project is furnished by the city within its limits and by the county of Dallas outside the city limits. Cost of construction, including preparation of plans for all sections except the downtown city section, will be shared equally by the federal government and the state of Texas. Preparation of plans and construction of the downtown city section will be the responsibility of the city, and the state will share in the cost of this construction to an extent not to exceed 50%.

The Texas Highway Department has set up a special office in Dallas, with T. E. Huffman as engineer-manager, for the design and construction of expressways in that city. This office is making the contract plans for Central Boulevard, excluding the city section, and preliminiary studies for an East-West Expressway through Dallas. Prior to setting up this office, J. G. Rollins, consulting engineer, was employed by the Highway Department to prepare plans for Central Boulevard, and his plans form the basis for the contract plans. Plans for the city section have been prepared by W. J. Powell, consulting engineer for the city. For the entire project, the estimated cost of right-of-way is $3,200,000 and of construction and engineering is $10,100,000. The first contract for the Hall Street overpass, amounting to about $250,000, has been let to Austin Bridge Company of Dallas, and bids are being received on three contracts, totaling about $2,500,000, until March. The entire project will be completed as fast as construction conditions will permit.

When to Build an Expressway

THE Milwaukee metropolitan area is lacking in traffic routes which are continuous from one part of the area to another without traversing heavily congested business streets or streets with impediments to traffic flow. All such routes generally have cross traffic, interference from parking maneuvers and public transit vehicles, and other drawbacks. These are the direct cause of high traffic accident rates, low traffic volume capacities, nervous tension in driving, and traffic delays.

On a limited-access highway or expressway, on the other hand, whether depressed, elevated, or at grade, vehicular and pedestrian traffic crosses the expressway at a different level from the traffic on the expressway; parked vehicles and entrances and exits to abutting property are on separate service roads; turning vehicles do not cross the path of other vehicles; and traffic moving in opposite directions is physically separated. The results are maximum traffic safety, high vehicle capacity, low driver-tension, and minimum traffic delays and travel time.

An expressway is expensive to construct and must attract large vehicular traffic volumes to be justified. A six-lane expressway will carry traffic volumes in excess of 50,000 vehicles per day, whereas it would take fourteen to eighteen lanes of surface streets to serve that same traffic. Arroyo Seco Parkway and Riverside Drive, Los Angeles, and Davison Expressway, Highland Park, Detroit, have met with such widespread public approval that those communities are proceeding with larger expressway programs. On the above basis, a volume of 30,000 vehicles passing a given point in twenty-four hours appears to be a reasonable and conservative figure to use as economic justification for building an expressway.

Expressways must be located so that maximum benefits will be derived by individuals, by industry, by business, and by intra-and inter-city commerce. An expressway should, therefore, (a) be located where a great travel desire is indicated, and (b) be designed for the use of all types of power-operated vehicles.

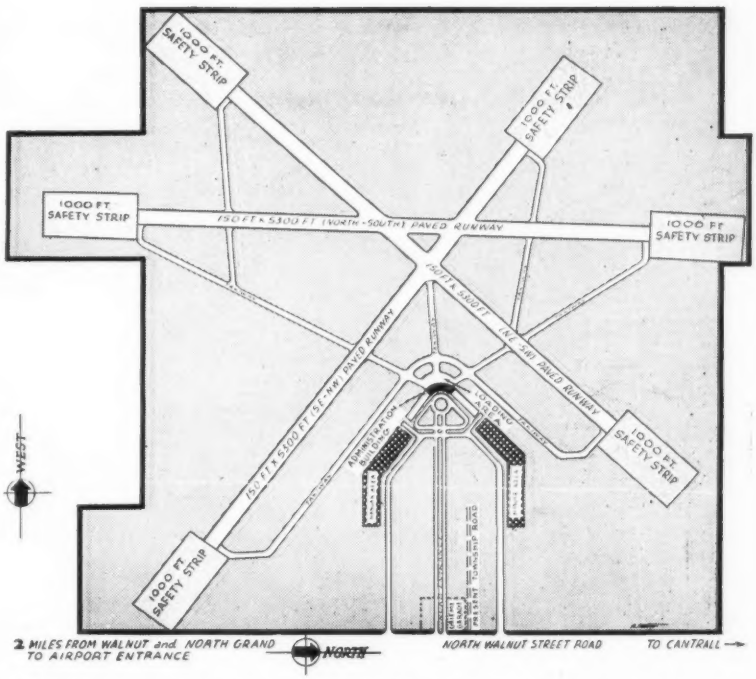
An expressway must serve as a feeder for distributor streets to important business centers, industrial districts, and residential areas. It must connect with important U. S. and state highways entering the area and be so located that interference or damage to existing buildings and facilities is at a minimum.

From Summary and Conclusions of the Origin-Destination Traffic Survey of the Milwaukee Metropolitan Area conducted jointly by: State Highway Commission of Wisconsin and Local Governmental Units in cooperation with the U. S. Public Roads Administration.

The Springfield Airport Authority

THE new airport that will serve Springfield, Ill., is being constructed under the direction of the Springfield Airport Authority, a municipal corporation independent of all other local governmental agencies. It was established by a vote of the people in 1945 under an act entitled "An Act in Relation to Airport Authorities." The Airport Authority embraces an area of three townships and includes the City of Springfield, Ill., the urban territory surrounding the city, and the territory intervening between the airport site under development by the city.

When the people of Springfield established their Airport Authority, they adopted the provisions of said Act, which authorizes the Authority to establish airports, to maintain one or more airports within its corporate limits, to regulate flight within such territory, and to zone therein for aeronautical purposes. The Authority is also authorized to levy an annual tax for operation and maintenance and to issue bonds secured by the taxes and bonds secured by operating revenue. It has initial bonding power up to one-half of 1% of its total "full value" assessment, which can be exercised without separate referendum. The Authority may issue additional bonds up to a total of 1¼% of the full assessed valuation if authorized to do so by referendum.


1000 FT. SAFETY STRIP
1000 FT. SAFETY STRIP
1000 FT SAFETY STRIP
1000 FT SAFETY STRIP
150 FT x 5300 FT (NORTH-SOUTH) PAVED RUNWAY
150 FT x 5300 FT (EAST-WEST) PAVED RUNWAY
150 FT x 5300 FT SE-NW PAVED RUNWAY
1000 FT. SAFETY STRIP
1000 FT. SAFETY STRIP
ADMINISTRATION BUILDING
TEMPORARY TERMINAL BUILDING
WEST
2 MILES FROM WALNUT and NORTH GRAND TO AIRPORT ENTRANCE
NORTH
NORTH WALNUT STREET ROAD
TO CANTRALL

How the new airport serving Springfield, Ill., will look when completed.

How Governed

The Airport Authority is governed by a board of five commissioners—three appointed by the Mayor of Springfield, all of whom reside within the corporate limits of the city; two appointed by the County Judge, one of whom is required to reside within that part of the incorporated area which lies outside the city. The other is appointed at large from within the incorporated area.

This act was a result of four years of effort and was originally sponsored by Mayor John W. Kapp of Springfield and the Illinois Aviation Conference. As first enacted in 1943, it was declared unconstitutional by the Supreme Court because of minor defects which resulted from amendments to the original bill. The act was revised and all known defects eliminated. It was reintroduced in the 1945 session, passing both houses of the Legislature, and became a law on April 4, 1945. Court proceedings to test the constitutionality of the law proceeded with the incorporation of the Authority. The law received a clear bill of health from the Illinois Supreme Court. One of the unique features of the law is that it enables two or more municipalities to collaborate in the establishment of a common governmental agency to own and operate an airport serving both towns.

Site Selected

As soon as the Airport Authority was created, it moved to select a site and decided on an area of 960 acres which can be expanded. The site is located a convenient 3.8 miles from the center of the city and is separated from the corporate limits of the city by a wide creek valley and park and other public grounds. The Civil Aeronautics Administration is constructing a landing field on the site consisting of three runways, each of which is 5,300 feet in length by 150 feet in width, with 1,000-foot safety strips at each end. This project was scheduled for completion by January 11, 1947. The cost of the landing field with field lighting will approximate $1,700,000, of which $1,650,000 is now under contract.

The Airport Authority is proceeding in collaboration with the state to develop its terminal area. A contract has been awarded for the construction of initial apron which will provide four commercial aircraft stations and additional apron for the use of other aircraft. Essential water distribution and storm and sanitary sewerage systems went under contract November 1, 1946. The Authority is proposing to build a temporary terminal building to house terminal operations until the present building emergency has ended and a permanent building can be erected. T-hangars for private plane storage and a service hangar are scheduled for installation by the Spring of 1947.

Many Commercial Uses

American Airlines and Chicago and Southern Airlines are certificated for commercial airline service to Springfield. Other existing and proposed new airlines have applied to serve Springfield and other central Illinois cities. Parks Air Transport, Inc., is proposing to establish feeder-line service for Springfield and other Illinois cities.

The present commission consists of E. S. Perry, Arthur H. Gottschalk, J. David Jones, Frank L. Melin and J. Earl Welch. Carl A. Fisherkeller is treasurer; H. Y. Armstrong is secretary, and Hugh J. Dobbs is general attorney.

—Airport plan courtesy of *Cosmo Topics*, official publication Cosmopolitan International Club.

Survey Spurs Housing For Pittsfield

Some 252 Houses Are Now Being Built as a Result of the Housing Survey Report of Pittsfield, Mass.

By PHILIP C. AHERN, *Survey Director, Pittsfield Taxpayers' Association Pittsfield, Mass.*

THE Pittsfield Housing Survey Report, published in September 1946 by the City Planning Board in arrangement with the Pittsfield Housing Survey Committee, is beginning to show results.

The nature of the housing market was brought to the attention of local and outside builders as soon as the figures were compiled, and, with this information, builders have set out to construct homes to conform with the demand. They are now building in Pittsfield some 252 houses, the largest number built here since 1924.

A bill has been introduced in the state legislature, known as the "Pittsfield Plan," under which non-profit private corporations could build single, double or multi-family rental housing. The city is empowered to convey land to such a corporation at less than fair market value — presumably land acquired for foreclosure of tax title or, as the bill states, "in some other way." Provisions of the state Urban Redevelopment Act of 1945 are made to apply to these corporations. For a period of thirty-two years they would be, under the bill, exempt from normal taxation, but would pay to the commonwealth an excise tax equal to 5% of the gross income and $10 per $1,000 valuation on the fair cash value of the property.

Under this bill it is expected that local industrial development companies and the banks and insurance companies will join forces to provide 100 to 200 rental units for veterans, in a multi-family garden type of apartment. It is hoped that these units will rent for $45 to $55 a month. The facts of the survey, indicating a need for reasonable rentals, stimulated this step.

Action has also been taken, under an enactment of the legislature in June 1943, which gives power to the local department of health in respect to unfit dwellings. A list of such dwellings has been brought to the attention of our commissioner of health, and he has requested landlords to make their properties habitable for tenants. If they fail to conform to his request within thirty days, he is empowered to initiate a petition in equity to enforce the standards of this act. Many landlords have improved their properties even prior to inspection by the commissioner.

Like many cities, Pittsfield has an abundance of sub-standard property which cannot be rehabilitated. Under the state Urban Redevelopment Act, or if and when the Wagner-Ellender-Taft Bill is passed, it is expected that Pittsfield will replace its sub-standard housing with about 400 low-rent units.

PHOTOS COURTESY OF VERA W. FIELDING

These photographs (left and above) tell the story of Pittsfield's housing problem.

This two-story house was painted in 8 minutes 30 seconds as a feature of the clean-up campaign of Memphis, Tenn.

"Clean-Up Week"—
and a Year-Round Program

By FRANK ZITO
Director, Civics Department
Memphis Chamber of Commerce
Memphis, Tenn.

FROM a city of 40,000 people at the beginning of 1878, Memphis had become a shattered village of some 9,000 weary souls a few months later.

Yellow fever struck in those months of 1878 and all who could fled the high bluffs of the Mississippi River, some of them never to return. Large commercial establishments, now of national prominence, left the once-thriving river town to set up their wares in St. Louis or Louisville, where the health conditions were less hazardous.

The yellow fever epidemic in 1878 was the most disastrous of these epidemics, but by no means the last. A few cases were reported almost every year afterwards, and there was a sizeable epidemic, with many deaths, again in 1897.

The City Awakes

Shortly after the turn of the century, however, the city awoke to the disaster that these epidemics were causing, and realized that if it was to prosper, it must eradicate this constant threat. The first step was the construction of an artesian water plant which today Memphis believes is unexcelled anywhere in the world.

Once started on cleaning up its city, the campaign gained impetus. Whether the efforts were directed more toward creating a spic-and-span appearance than as a caution against disease is debatable, but it is certain that one cause served well to advance the other.

In 1946, for the seventh consecutive year, Memphis, through its efforts in the annual clean-up campaign, was adjudged the "cleanest city in Tennessee."

Public and Private Efforts Unite

Clean-Up Week in Memphis enlists the combined efforts of the fire, police, and health departments, the City Beautiful Commission, the Memphis Chamber of Commerce, and private interests. In addition, the City Beautiful Commission, a full-time organization with an annual appropriation and about ten paid employes, does a vast amount of work on the promotion.

It might be significant to note that, in addition to having been adjudged the cleanest city in Tennessee, Memphis has been a winner in national contests involving fire prevention, health promotion, and traffic safety. It is the local contention that there is a relation between these promotions and the very successful "clean-up" efforts.

The real spark of Clean-Up Week in the city stems from the interest of businesses and citizens. The paint and building-supply industries cooperate wholeheartedly and emphasize their interest with cash contributions and personal effort to help put the promotion over. The Chamber of Commerce cooperates fully through its membership and its Civics Department staff. Members of the staff of the local papers and radio stations serve actively on various committees.

The Year-Round Program

Clean-Up Week in Memphis is actually a year-round program. Through cooperation with various civic and improvement clubs, entire sections of the city are encouraged to join in improving their property, and neighbor helps neighbor make the improvements. They are encouraged not only to paint, but to repair and to clear away rubbish. Much property in substandard repair—often owned by absentee landlords—is brought to the attention of the proper city authorities. If improvements are required—to lessen fire hazards or improve health protection — these facts are called to the attention of the owners and improvements are effected, often beyond the requirements.

The City Beautiful Commission, under the zealous direction of Mrs. W. B. Fowler and her staff of workers, both colored and white, work all year long helping home-owners, encouraging the planting of trees and shrubs and general improvements of property. Quite often the colored people respond to such encouragement with more positive action than the whites. Owners of industrial sites, particularly those bordering residential areas, have also been encouraged to join the beautification program.

The City Beautiful Commission is also in charge of the "clean-up" promotion in the schools, and shortly before the actual Week begins, every student in Memphis is presented with a checklist of items to take home to his parent. These lists are returned, checked and signed by the parents, and the improvements which have been made are noted.

Long in advance of Clean-Up Week —which is usually the first week in April—the actual work of the promotion starts. Guest appearances on radio shows, speakers at luncheon clubs, and news stories of neighborhood activities are parts of the advance publicity.

Paint and building-supply houses set up their departments to cooperate with those persons making improvements, and every citizen has the campaign brought to his immediate attention.

Parades and Stunts

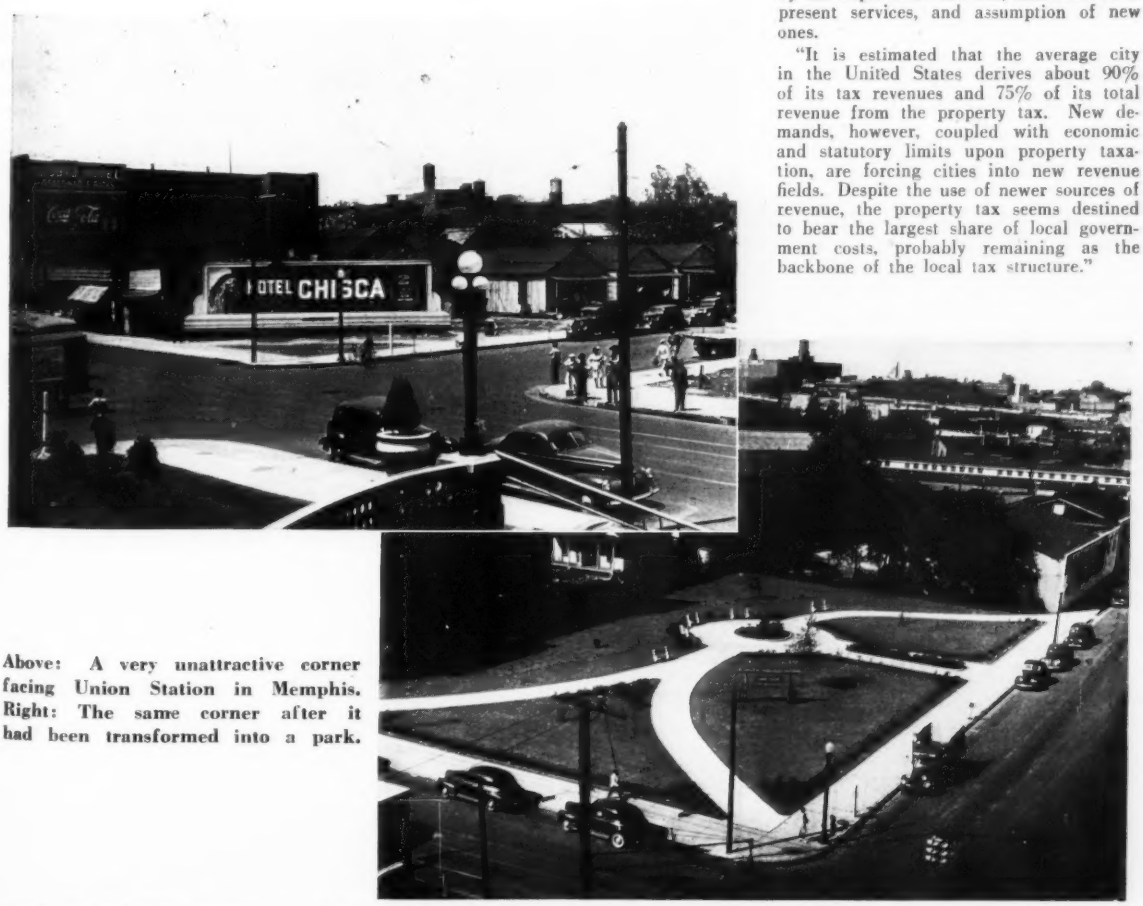
Memphis is a town which loves parades and indulges in them at every opportunity. Clean-Up Week usually starts, therefore, with an uptown parade on a Saturday morning. Street-cleaning equipment and fire-fighting apparatus join the parade; floats showing the work of the health department are included, and school children act out a pageant on the benefits of cleaning up. Other floats are donated by the paint and building-supply industries; these are often elaborate, and great ingenuity is used to make them humorous. The parade ends in a rally at Court Square in the heart of the downtown section, and last year the Mayor opened the festivities by donning work clothes and starting off the cleaning and painting of the fixtures in the park. Uptown shops and stores cooperate by donating window exhibits, and art galleries and schools put on special displays of posters entered in contests.

A specific promotion stunt on one occasion was the painting of a large two-story house at night by members of the painters' union—in 8 minutes 30 seconds—to the accompaniment of bands and searchlights to attract the crowds.

One particularly effective annual activity is the rallies held during Clean-Up Week at various civic centers in different parts of the city, where crowds are attracted by a free show and prizes—and where the benefits of a clean and attractive neighborhood are brought home to the citizens in their own home communities.

Sparked by W. M. Barr and A. P. Mills, two businessmen, and with the full cooperation of Mrs. Fowler of the City Beautiful Commission and Commissioner Robert Fredericks, the clean-up campaign in Memphis has helped to create a well-groomed city. And it has made the "spring house-cleaning" a great cooperative effort in which everyone has an opportunity to join.

"Clean-up" in Memphis has added more significance to the meaning of the Egyptian word "Memphis"—which signifies "Place of Good Abode."



Above: A very unattractive corner facing Union Station in Memphis. Right: The same corner after it had been transformed into a park.

Rise in Tax Rates and Assessments in 1946

A PROMINENT feature of the 1946 municipal scene was an accelerated increase in tax rates, a study prepared for the National Municipal League showed. Real estate taxes increased in 52% of the 249 cities which were surveyed. Of the ctiies studied, 30% reported decreases and 18% had no change.

The average rise in the adjusted tax rate over the 1945 figures was 52 cents per $1,000 of assessed valuation. There was also an assessment increase of 5.3%, which is the greatest yearly boost since comparisons were first made in 1932.

The report, prepared by the Detroit Bureau of Governmental Research and the National Training School for Public Service and printed in a recent issue of the *National Municipal Review*, summed up the situation as follows:

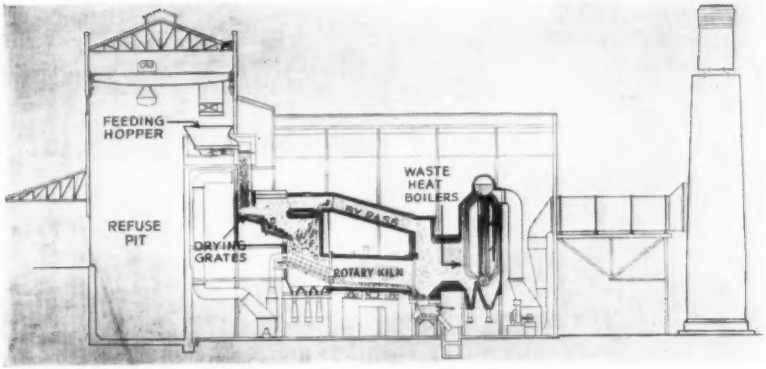
"These tax rate and assessment increases have, nevertheless, been insufficient to meet post-war expansion of municipal activities and increased costs. Greater revenue needs have been incurred by higher equipment and supply costs, increased payroll outlay, resumption of public construction retarded by the depression and war, maintenance of present services, and assumption of new ones.

"It is estimated that the average city in the United States derives about 90% of its tax revenues and 75% of its total revenue from the property tax. New demands, however, coupled with economic and statutory limits upon property taxation, are forcing cities into new revenue fields. Despite the use of newer sources of revenue, the property tax seems destined to bear the largest share of local government costs, probably remaining as the backbone of the local tax structure."

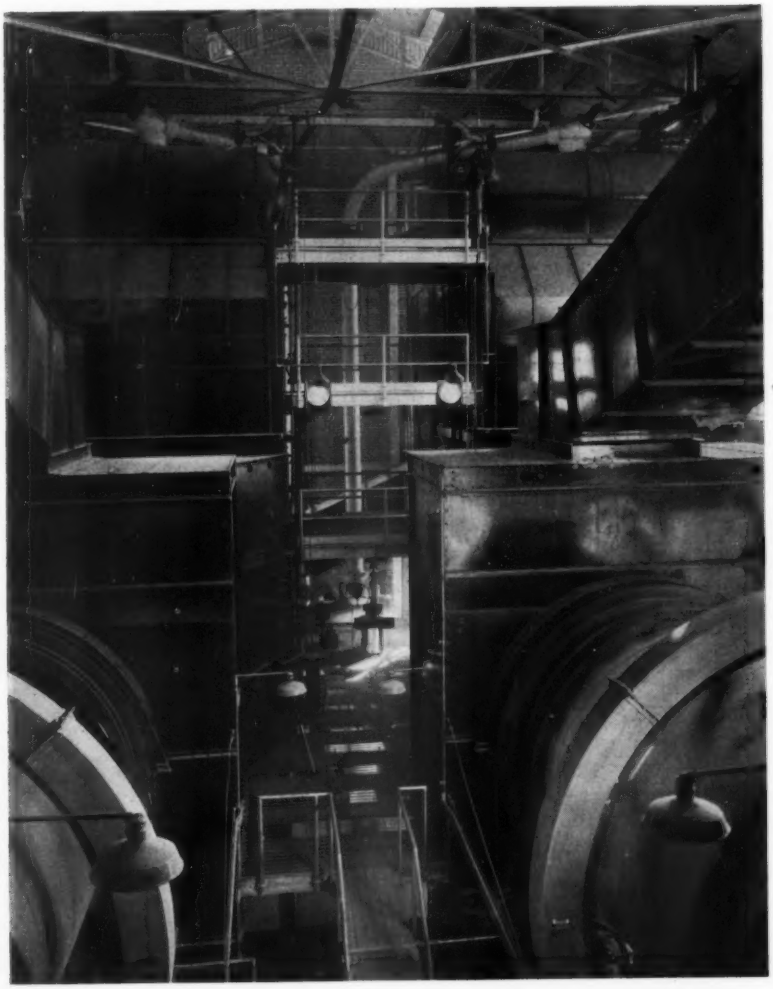
Incinerator Revenue

. . . A story of how the Atlanta incinerator earns the cost of its construction while destroying city's refuse.

By H. J. CATES
Chief, Sanitary Department
Atlanta, Ga.



This simplified diagram shows how the rotary-kiln incinerator operates.



Looking at the plant from the control board station. On each side are the rotary kilns. The boilers can also be seen in the far background.

Incineration, particularly for larger cities, does not always need to be an all-expense affair. The plant that we have in Atlanta, we believe, supports this statement. Incineration produces heat, and heat means energy. In larger plants, one ought to be able, by sound engineering study, to put that energy to productive use.

In our city, we transform that heat into steam, sell the steam to the private utility here, and use the revenue to pay for the plant's construction. The steam floats on the utility's line and heats most of downtown Atlanta. Many of our businessmen would probably be surprised to learn that heat for their offices comes from garbage and refuse.

The Atlanta incinerator, itself, is different enough to demand careful examination and has been described previously (see THE AMERICAN CITY, July 1942). However, a re-examination now would be helpful in interpreting some of the operating results. Designed by Robert and Co., Atlanta consulting engineers, it utilizes a principle introduced in Denmark in 1932 and now in successful operation in several European cities—or at least this was true prior to the war. Entirely mechanical, it employs a continuous charging feeder, a drying grate, an ignition and burning grate, a rotary burning kiln, and a clinker extractor and conveyor.

We are able to charge the refuse at a continuous rate, feeding it onto a drying grate where drying is effected by radiation from the ignition chamber. The refuse then passes onto the ignition and burning grate, which, like the drying grate, is mechanically operated. Blasts of pre-heated air to support combustion are admitted to a series of air chambers below the grate where dampers permit control of burning conditions at any point. The partly burned refuse is then discharged in a steady stream into an inclined rotary kiln, which revolves slowly to suit burning conditions and exposes to the current of hot gases and flames any matter that has not been completely reduced. These gases pass into a large flue where they combine with subsidiary gases from the ignition and drying chamber.

A separate duct withdraws odorous gases from the drying chamber to a point beyond the kiln discharge where they combine with the hot gases and become completely sterilized and odor-free. The same by-pass duct provides a means for adjusting the withdrawal from the ignition chamber of part of the combustion gases that are trans-

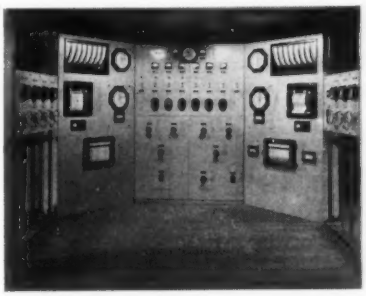
ferred at low velocity to the boilers.

The material discharged from the kiln is in the form of completely burned clinkers. The degree of burning required is, of course, dependent on the type of refuse being reduced, and we are able to control this burning easily by the rotation of the kiln.

The plant is built in two complete incinerator units, each powering a 700-hp two-drum waste-heat boiler in the shape of a vertical tube. A 200-foot brick stack provides draft for the units. Cleanliness and lack of smoke are two "musts" about this plant because it is located in the heart of Atlanta.

The design, important because of its unique characteristics, has attracted the attention of visiting engineers. However, to us, the plant's money-earning angle is far more important. This will means that it won't cost the people of Atlanta one thin dime for construction, and in the near future it will start meeting the cost of operation. Operating costs need to be examined rather carefully anyway, not only from the standpoint of accuracy of figures, but also from the viewpoint of the philosophy of the man who compiled them. There are many strange things done in the name of municipal accounting, such as using water revenue money to pay police salaries and to build streets and parks. In our opinion, municipal service should be supported by those who receive the benefits.

We drew up the plant on the basis that the city must dispose of its refuse. That is one of those inescapable municipal obligations. You do not collect refuse to dispose of it at a profit. You dispose of it because you have to in order to make a clean city. Therefore, any revenue that results from this operation is logically profit. We use it to retire the cost of the plant and have based our method of financing on it. To build the plant, we issued revenue bonds in which the earnings from the generated steam would be dedicated to pay these bonds. We gave ourselves twenty years to meet the payments; if things continue as they have in the past, we will meet these obligations in twelve years.



From this switchboard, the operator controls each phase of incineration.

Earnings have been unpredictable during the war, since refuse characteristics were as changeable as the current salvage drive. Our most nearly normal year was 1942 when we felt the effects of the war less than at any time since the plant has been in operation. Salvage coupled with the more thrifty habits of our people cut the amount of refuse we had to burn. Furthermore, in 1942 we had an average evaporation of 1.71 pounds. In other words, we produced 1.71 pounds of steam per pound of refuse burned. But in 1945 this dropped to 1.50 pounds. We can account for this in the reduction of heat values caused by the salvaging of paper. However, despite this, our revenue has never fallen below $45,700 per year, and, despite increased operating costs caused by higher labor rates and similar present-day difficulties, our gross costs per ton have ranged between $0.93 in 1942 to $1.37 in 1945.

We increased the plant income to some extent by reclaiming and selling the tin cans from the incinerator residue. We found a market where the producer was making alloy for steel and other metals. His tests showed that the mild steel used in tin cans was just right for alloy, but the cans must be absolutely free of any trace of tin. Income from our tin cans has been fluctuating between $2,500 to $10,000, depending on the amount of cans that we have available.

If we assume that the revenue earned by the plant is used to offset operating costs as eventually will be the case, we can calculate a net operating cost per ton. This would show our 1942 costs to be $0.38 per ton and our 1945 costs—abnormal from a refuse standpoint—to be 0.82 per ton. In either case, such costs are not excessive for refuse disposal.

It is our feeling that a plant such as this is worth considering whenever the daily combustible refuse load reaches a minimum of 100 tons. The heat in the incinerator represents energy that should be put to work.

For Greater Electrification of 34,858,460 Homes

THE electrical industry, though only sixty-seven years old, represents a capital investment of 15 billion dollars. Its continued growth was shown graphically at a recent convention in Atlantic City of the National Electrical Manufacturers Association.

For ten years adequate wiring has been the electrical industry's "road building program." On wiring depends the market for the thousands of devices that have revolutionized American living within a lifetime. If homes already wired were better wired to the industry's accepted standard of minimum adequacy, there would be a need for 26% more generating, switching, and transmitting equipment and 29% more primary feeder capacity and distributing facilities. The campaign has been pushed by NEMA and other electrical industry organizations for a decade, and a far more than redoubled effort was urged at this meeting by committee representatives H. E. Merrill, Production Promotion Manager, Wiring Devices Division, General Electric Company, and R. M. Oliver, Vice-President, Proctor Electric Company.

The importance of the small town and rural market was depicted by W. J. Cashman, Director of Promotion and Publicity, Landers, Frary and Clark. Of the 3,052 counties, 2,397 have no city of 25,000 population or more. Yet this market is far greater than the foreign market, to which such great attention is directed. While 17,400,000 families live in places of 10,000 population and over, 3,238,968 families live in places of 2,500-10,000, 7,151,471 are non-farm rural families, and 7,106,561 live on farms. The desirability of the electrical industry's serving this half of the nation's life is due not only to the huge potential market it represents but also to the inroads being made in it by liquid petroleum gas. The degree of competition is suggested by the fact that LP-Gas in its native Texas costs 2½ cents per gallon. At 5½ cents in New York City, there is a profit of ¾-cent. Sold at 6 cents, it compares with electrical energy at the low price of 2 cents per kwh. A billion gallons were sold to 14,000,000 homes in 1946. Big Oil is becoming conscious of this market. So is Big Electricity, whose campaign slogan in the rural and small town market is, "Go All-Electric." A comprehensive program to secure this rural-small-town market for electric appliances is already under way. NEMA's address is 155 East 44 Street, New York 17. N. Y.

St. Paul's Algae Cyclopedia

A study of the unicellular organisms as recorded in the St. Paul water supply. Significant in the study are the requirements for the growth of the algae, their advantages and disadvantages, and control methods.

By ROSS THUMA
Superintendent of Filtration
Water Department, St. Paul, Minn.

THE St. Paul water department's studies of algae have centered around two lakes that furnish this city's supply of water. These lakes are located about two miles apart in sparsely settled country. The city stabilizes their level by pumping water into them from the Mississippi River. Since 1915 we have been treating one, Lake Vadnais, with copper sulphate, while allowing what small algae growth that appeared in Pleasant Lake to remain untreated. Thus, by comparative studies, we have been able to analyze the effects of algae in water supplies and the requirements for their growth and their control.

The water pumped from the river has a hardness of from 100 to 250 ppm. The color of the water ranges from twenty-five to one hundred and seventy-five ppm, and the turbidity of the water from two to seventy-five. The oxygen-consuming value of the water is generally high. The dissolved oxygen of the water is likewise high. The water in the North River of the Twin Cities never reaches a condition of stagnation.

To begin, let us see what these algae are. We know them as unicellular microscopic plants that are propagated by simple cell division, or by means of spores, or by both methods. Becoming more scholarly, algae are a "group of cryptogamous plants in which the body is unicellular or consists of a thallus; including seaweeds and many fresh water plants." The thallus is the simplest form of plant and is not differentiated into root, stem, and leaf. Since the algae are propagated by means of spores, they may be carried from place to place by birds, animals, and the action of wind and water. The multiplication of the algae by the process of simple cell division indicates that they are capable of rapid growth in a water supply when suitable conditions for growth occur. The quick change in the character of a lake due to the development of an algae growth needs no further argument to people familiar with biological growth. There is not only an increase in the organic content of the water but a change in the odor, turbidity, alkalinity, and pH.

Requirements for Algae Growth

To grow, algae need suitable temperature, light, water, carbon dioxide, and mineral elements. Surface water contains the carbon dioxide and the mineral elements necessary. The algae contain chlorophyll, a substance that has the ability to synthesize sugar with the help of sunlight by combining carbon dioxide and water in appropriate ratio. The algae then utilize the sugar and mineral elements in the process of constructive metabolism. The unicellular plant, without specialized parts, contains within itself the ability to accomplish all of the functions that are performed by the higher plants. It bathes in its food supply and selects from the solution the essential elements for the growth of the plant.

The algae, although small, are high in nitrogen, sulphur, phosphorous, and their compounds. The nitrogen and sulphur compounds contribute to the formation of malodorous gases when the algae undergo decomposition.

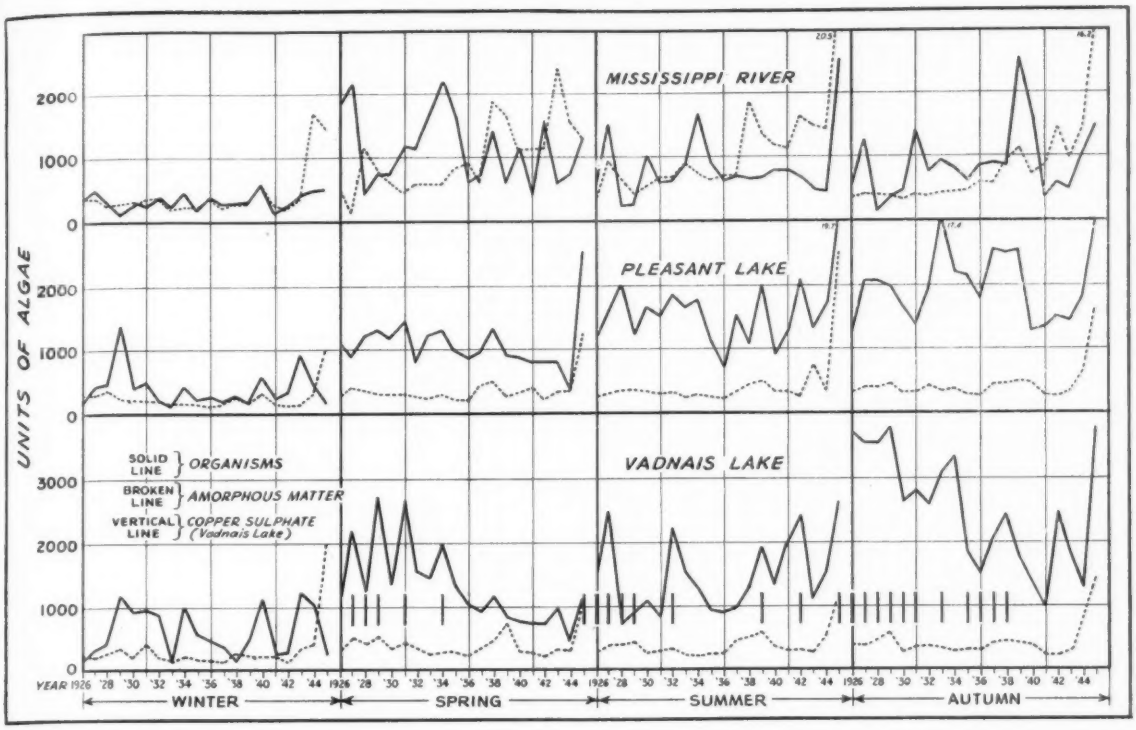
In the process of metabolism they consume carbon dioxide, which is obtained either from free gas dissolved in the water or from the half-bound carbon dioxide of the bicarbonates. If the carbon dioxide is obtained from the bicarbonates, the bicarbonates undergo chemical changes resulting in the formation of calcium carbonate (normal carbonate). The change from calcium bicarbonate to calcium carbonate results in a change in the water to a more alkaline reaction. In the process of metabolism the algae release large quantities of oxygen into the water, preventing stagnation and providing a suitable environment for animals and fish.

Algae Advantages and Disadvantages

Contrary to popular belief, algae do perform certain beneficial functions. Introduction of oxygen into the water is one; removal of carbon dioxide is another, not to mention removal of certain mineral salts. The fact that they provide a food supply for the crustaceans which in turn are utilized as a food supply by the small fish is another point in their favor.

However, their disadvantages are real and annoying. Their life cycle is short, and accordingly the plant soon undergoes decomposition, producing malodorous gases and the liberation of volatile oils. Although the water may be bacteriologically safe, your customers still won't use it.

We observe logically enough that the algae present no problems as long as they are alive. Consequently, it is sometimes better practice to keep them alive than to kill them. In our plant the algae will be trapped by the filters and removed by the filter backwash. Under such conditions, they will



This graph shows how the algae population varied in the Mississippi River, Pleasant Lake, and Vadnais Lake, season by season since 1926. Photograph 1, on the left-hand page, shows the Mississippi River, which furnishes the water that forms the lakes' supplies, used by St. Paul. Pleasant Lake (No. 2) and Vadnais Lake (No. 3) have outwardly very similar characteristics. However, at the former, water supply officials have never used any algae control measures; whereas at the latter intermittent treatment by copper sulphate has been in use since 1915.

not cause the operator any particular trouble.

However, too many algae will cause difficulty. They interfere with and will not be removed by coagulation. They finally light on the filter and cling tenaciously to the sand grains, decomposing slowly and liberating malodorous gases. They have a tendency to plug the filter and require more frequent backwashing, causing wear and tear on the filter beds and wasting wash water.

Classify by Trouble

The group of algae giving the most difficulty in the St. Paul water supply is that of the diatoms, and after the diatoms, the blue-green, and lastly the green algae. The diatoms appear in large numbers in water that is 55 degrees F. or lower. After the temperature of the water reaches 60 degrees, the diatoms disappear rapidly and do not reappear until the temperature of the water again sinks. The blue-green algae thrive best at water temperatures of 65 degrees and over. The green algae do not have any definite band of temperature for optimum growth, but occur in small numbers at irregular periods throughout the growing season.

The algae are not controlled by the water temperature alone, but depend upon food supply and sunlight. The diatoms grow more luxuriously in subdued sunlight, that is, under a gray cloudy sky, accompanied by warm spring and fall temperatures. The blue-green algae grow best in the presence of good sunlight as provided by the long sunny days of midsummer.

Just why some lakes do not have algae growth is not easily explained unless it is caused by the absence of food material. In a chain of five small lakes with the water flowing from one to another, the writer has observed the effect of food material furnished to the algae in the form of sewage discharged into the first lake and extending through the entire chain.

In the chain of lakes defiled by sewage the blue-green algae grow in abundance. The water of the lakes is so polluted by the algae growth, the appearance of the lake is so unsightly, and the stench from decaying algae so persistent as to make the lake shore unattractive for homes and the water unfit for recreation purposes.

The Algae Life Habits

Let us look in detail at the habits of the algae in the main sources of St. Paul's water. The flowing water in the Mississippi River is not conducive to the growth of algae. Its turbidity and color tend to reduce the light in the solution and thereby hinder algae growth. As the accompanying graph shows, the algae are comparatively low in the winter season, with the amorphous matter paralleling the organisms for the most part.

As we would naturally expect, the organisms flourished in the years from 1931 to 1935, years of drought and low-water flow in the river. In the years from 1936 to 1944 the rainfall was higher and the organisms decreased, while the amorphous matter increased. The summer season shows a similar trend of conditions in the river water to that of the spring season. The temperature of the river water decreases in the autumn season somewhat faster than that of the lakes and thereby slows down the algae growth. The autumn season shows a high peak in the growth of the organisms for 1939, a season with the temperature somewhat above normal. The high peaks in the amorphous matter are due to heavy rains in the autumn season.

Pleasant Lake and Vadnais Lake are remarkably similar. The former covers an area of 686 acres, has a water-holding capacity of 4,169 million gallons, while the latter has an area of 405 acres

and a capacity of 3.784 million gallons. There are portions of both lakes where the water is shallow and where normal weed growths project above the surface of the water. Pleasant Lake is on a private estate and largely in timber land; it is closed to the public. Vadnais Lake, while on public property, may be considered closed insofar as any traffic upon it affects the growth of algae. In both cases the organisms are practically always above the amorphus matter. The significant feature is that on the whole the algae in Pleasant Lake were low and with few exceptions would not interfere with the water for public water supply; whereas in Vadnais Lake, we felt that the need for treatment existed.

Vadnais Lake

Vadnais Lake has been treated intermittently with copper sulphate for the control of algae growth since 1915, at a rate of 2 pounds per million gallons of water applied by the motor boat and sack method. This method has its difficulties. At best, the copper sulphate is applied to a comparatively small portion of the water and then diluted out into the entire body of water. Investigation of the residual copper sulphate in the lake water shows that the effectiveness of the treatment is gone in the space of a few hours. The copper sulphate content rapidly decreases from the time of application until, at the end of 48 hours, it completely disappears from the water.

The influence of the copper sulphate on the algae is that of either complete removal in the space of three or four days or total failure. Although the copper sulphate treatment kills quickly, the dead algae require from five to seven days to disappear and the water to clear. A treatment of copper sulphate properly applied ought to remove at least 90% of the killable algae from the water.

The algae content of the water of Vadnais Lake has a tendency to fluctuate over rather a wide range, but always is higher than the river water. The concentration of algae increases from season to season. In the winter it has an algae content of about 400 units; in the spring, about 1,100 units; in the summer, about 1,500 units; and in the autumn, about 2,000 units. Pleasant Lake had a high algae count in the winter of 1929 and another in the summer of 1945, with a third in the autumn of 1933 for reasons that are difficult to explain.

In general, the algae that could be killed with the 2 pounds of copper sulphate per million gallons or less remained low throughout the years. The algae requiring 2 pounds of copper sulphate per million gallons or more for their extinction was somewhat higher, especially in the autumn seasons. The types of algae requiring more than 2 pounds of copper sulphate per million gallons were comparatively high in all seasons. The number of types of algae that may not be killed by the application of copper sulphate were discovered to be small in Vadnais Lake. The algae that required 2 pounds or more of copper sulphate per million gallons to kill are numerous. However, in the few years that Vadnais Lake was either untreated or treated only once a year, the algae count was about parallel to that of Pleasant Lake. The water from the Mississippi River showed that algae were divided with respect to copper sulphate in about the same ratio to that of Pleasant Lake.

Our experience with Vadnais Lake indicates that the algae may be reduced but never eliminated from lake water. Our treatment of the lake with copper sulphate for the control of the stephanodiscus type of algae has been disappointing. Our experiment of treating water in a flask with copper sulphate as high as 60 pounds per million gallons of water has likewise been disappointing with stephanodiscus.

There seems to be little or no correlation between the annual precipitation and the algae growth. However, it has been observed that severe and heavy rains tend to disperse the algae throughout the body of the lake, and that high winds blow the surface accumulation of algae growth to and on the shore.

Temperature of the Water

The temperature of the water determines the rate of algae growth and the type of plant. The algae populations of the lakes in this locality reach their minimum in the winter and their maximum in the autumn. Since the different types of algae have fixed temperature zones in which they develop season after season, a knowledge of the water temperature and food supply will enable one to predict the type and probably number that are likely to develop in the water of a locality.

The author desires to express his appreciation to the Board of Water Commissioners and to Leonard N. Thompson, general manager of the St. Paul Water Department, and to other members of the water department who assisted in preparing the data included in this article.

The Case of the Clogged Water Mains

—Or Copper Sulphate Cleans Up

IN THE LATE 1930's Manager Frank Amsbary, of the Illinois Water Service Co. of Champaign, had a problem. Not only did the good people of Champaign and Urbana like the water his company distributed, but various types of iron bacteria such as *lepothrix ochracea, gallionella ferrunginea, siderocapsa,* and *siderococcus,* and the ammonia-nitrogen eating group also took an interest in it.

The newcomers multiplied in the distribution system to such an extent they would very commonly reduce the inside diameter of a ¾-inch pipe to that of a lead pencil. Periodically they sloughed off and entered the water, causing innumerable complaints on the part of water consumers.

The problem had certain complications. Breakpoint chlorination might have been one solution, but it would have required applications of as much as 27 ppm to be effective. Mr. Amsbary had neither the chlorinators available to apply such a huge quantity nor the desire to go into the wholesale chlorine-purchasing business.

Since the records showed that copper sulphate could whip the iron bacteria, Manager Amsbary reasoned that it would handle the ammonia-nitrogen eating group as well. At the time, however, U. S. Public Health Service standards restricted the use of copper sulphate to 0.25 ppm. But with the blessings of the Illinois State Department of Health and the Champaign-Urbana Health District, he tried an application of residual copper, between 0.50 and 0.65 ppm, dissolving measured quantities of snow-grade copper sulphate in a 20-gallon earthenware jar and arranging a home-made feeder to siphon out 20 gallons of solution every eight hours. He fed the solution into the filter plant effluent just after chlorination and prior to its entry to the clear well.

The results seemed too startling to be true. In March 1940, sixty-six consumers complained of bad water. In May the number dropped to four. Just for a check, he stopped the treatment in February 1941. Immediately consumer complaints rose from four in January to twenty-one in February. When he started the treatment again in March, the complaints numbered only three for the month.

How Can Strikes by Municipal Employes Be Avoided?

This four-part symposium by a labor leader, a civil service specialist, and two prominent city officials offers constructive suggestions for keeping municipal employes working contentedly and avoiding serious interruptions to public services because of real or alleged grievances.

***The American City* will welcome comments on this subject from other public officials and industrial and labor leaders.**

Adequate Machinery Needed to Handle Public Employes' Grievances

By **H. ELIOT KAPLAN**
Executive Secretary,
National Civil Service League

RECENT strikes of public school teachers and similar strikes and threats of strikes among other municipal employes throughout the country have dramatically focused public attention on the relationship of public employes to government. The strike situation undoubtedly prompted the American Municipal Association's recent resolution advocating legislation prohibiting strikes of public employes. The issues have become acute. With municipalities providing many facilities heretofore operated by private enterprise, employer-employe relationships in many units of government now involve difficult and delicate problems.

It was inevitable that public employes, envious of the gains made by organized employes in private industry, would seek to emulate private employment practices. They have sought to transplant these practices without considering their applicability to government employment.

In its recent report on *Employe Organizations in the Public Service*, the National Civil Service League summed up what appears to be majority public opinion by declaring that it is the duty of the state to avoid unfavorable conditions of public employment and provide adequate machinery for the prevention or removal of employment grievances at their source. The report pointed out that even if the state fails in that duty, it still remains the obligation of its employes to limit the presentation of their cases to peaceable methods. It points out that a strike in government is not a strike against a "boss", as viewed in private industry, but a strike against the public, which in reality is the "boss" of both the department head and his subordinate employes.

Strikes of public employes will not be avoided merely by legalistic postulates and academic rationalizations. If we are to deny to public employes rights granted workers in private industry, such as the right to strike, to demand work contracts, the closed or union shop, and exclusive bargaining, it is manifestly the responsibility of government to provide adequate machinery for handling employe grievances. The public administrator should not be permitted to shield himself behind the pretext of "sovereignty of the state", or substitute the majesty of the law for sound administrative judgment and discretion. Public employes do have grievances, many of them similar to those arising in private industry. Employes must constantly keep in mind, however, the fact that the public administrators cannot always act with the freedom possible in private employment. However just and reasonable the demands of their subordinates, they must restrict themselves to the means granted by law. Redress must often wait upon legislative changes, slow and irksome as the process might be. Public administrators must recognize their paramount obligations of democratic leadership and their responsibility to the public. Employe organizations must subordinate their desire for improving conditions for their members to the interests of the people as a whole. The public, through its representatives, must do its part in providing the conditions which preserve the public interest.

Fortunately, most public administrators are aware of their responsibilities to the public. Likewise, most of the leaders of public employe organizations recognize their responsibilities to the public and have practiced commendable restraint in handling disputes between their members and the agencies in which they are employed. In general, the public has been sympathetic with just demands and grievances of the workers who carry on the day-to-day duties of keeping our public services running, and have been anxious to see that they get a square deal.

Ordinarily, these factors would augur well for stabilized functioning of government, with little disturbance and with freedom from work stoppages. It is evident from recent events, however, that the trend of employer-employe relations in government is veering toward emulation of the practices followed in private industry, whether or not they are applicable to government. While this trend is understandable, it cannot be viewed with complacency if the public service is to continue to be truly the people's service, in which the interests of the people as a whole are to be paramount.

No Closed Shop for Public Employes

Space will not permit much discussion of the merits of collective bargaining and other major issues of employe relationships in the public service. Practical as well as legal reasons prompt denial of a closed or union shop to civil employes. By the very nature of our system of government, public employes cannot claim this privilege. The right of any citizen to

qualify for public office or employment is inviolate. He may not be deprived of this privilege because of non-membership in a particular union or organization—any more than denial may be based on his political or religious affiliations.

Exclusive collective bargaining as practiced in private industry is neither judicially recognized nor deemed essential or desirable in the public service. Employment relationships in private industry and in the government service are not analogous. This does not mean that "collective negotiation" between public administrators and representatives of accredited employe organizations should not be encouraged. It should prove helpful in promoting better understanding on both sides. A wise administrator would, of course, give particular heed to the suggestions and recommendations of an organization representing the majority of employes. Adherence to democratic principles, however, demands that a properly recognized minority also be given a chance to be heard. Any arrangements resulting from collective negotiation must necessarily depend on the amount of administrative discretion permitted the agency by law.

Importance of Taking Initiative

Poor labor relations in government spring largely from failure of public administrators to recognize the importance of establishing modern procedures and practices in dealing with their employes. Adequate machinery must be provided for public officials meeting with employes collectively to assure ironing out of disputes before they reach the danger point. The initiative must come from top management in government unless public officials are to be subjected to the pressures of labor organizations, aided and abetted by opportunist politicians. Public sentiment will support any reasonable plan of government employe participation in the formulation of sound public employe relationships. These policies must be developed for the municipality as a whole—not merely for a particular class or group of employes.

Until adequate machinery is developed, strikes of public employes will increase rather than diminish. The way to keep our public employes from work stoppages and interrupting service to the people is to provide sound personnel practices which would avoid misunderstandings and create an *esprit de corps*, making work stoppages unnecessary and unthinkable. The best practical plan to be established is a challenge to the good sense and ingenuity of public administrators and leaders of public employes.

Avoid Delays or Condescension, Urges Labor Leader

By ARNOLD S. ZANDER
International President
American Federation of State, County and Municipal Employes

HOW strikes by municipal employes can be avoided is an interesting question and, fortunately, not a difficult one to answer. Most public officials answer the question by their daily administration; they are not at all worried about strikes by their fellow public servants. Administratively, they deal with their employes in good faith and without procrastination or condescension.

Records Show Few Strikes

Our records show that in 1941, with approximately 295 locals, we had only two strikes; in 1942, with 523 locals, the number of strikes increased to five; in 1943, with 647 locals, there were fifteen; in 1944, with 792 locals, there were ten; in 1945, we had 895 locals and nine strikes; and in 1946, with 1025 locals, there were seventeen strikes. These strikes occurred in spite of constant international union pressure against such actions.

We have a record also of serious employment situations in which strikes were threatened but averted. This latter record shows three such situations in 1942; eleven in 1943; ten in 1944; eighteen in 1945 and twenty-two in 1946.

The seriousness of these problems varied, of course, but we have listed only those which required the attention of the international union in order to avert trouble. In many of these threatened strike situations the fact that the local unions were affiliated made it possible to avoid actual strikes.

Several organizations have recently taken positions against strikes in the public service. This attitude constitutes a condemnation of a result from causes which it neither analyzes nor for which it offers solutions. It's the causes of strikes with which we labor. Some public officials, influenced by such preachments, have followed the policy of prohibiting strikes by legislation and have walked right into trouble. Some of the confusion arises from not making a distinction between an understanding reduced to formal contract and an understanding arrived at and carried on constantly by discussions between the employers and chosen representatives of the employe groups. Verily, we all condemn wars; but mere dicta have failed to prevent them. Now the United Nations struggles to find and eliminate the causes.

The question we are considering is, "how can strikes be avoided?" Inquiry into the causes reveals ways of avoidance. A glance at our files covering situations which have led up to strikes would reveal facts about as follows:

"Mayor refused to meet with employes over grievances"
"Three employes fired as "labor agitators"
"Lack of action by governor"
"Political dismissals"
"Failure to consider requests for wage increases by council"
"City abolished 489 jobs in effort to break union"
"Refusal of city manager to deal with organized employes"
"Refusal of city to negotiate grievances"

If one studies the history of strikes in any industry, it will be found that most of them occurred during the years when the workers were organizing, and because the employers opposed organization and refused to deal in good faith with their organized employes.

Organization of public employes is carried on freely in most of the state and local services. In these jurisdictions there is slight possibility of strikes. With some notable exceptions, strikes occur only where officials, because of arrogance, fear, or lack of understanding—fail to deal with their employes intelligently, decently, and according to modern concepts.

Conferences Recommended

We have avoided a large number of strikes by appealing with great patience to the understanding of public employers. We have convinced many officials that it is good administrative practice for them to sit down with representatives of their employes and converse with them in good faith about employment problems. Once officials engage in this perfectly reasonable, simple, and American procedure, there is little danger of strikes. There are exceptions, of course, some of which are caused by poor local union leadership. We try to recognize these situations and to be perfectly frank about them.

Meet Employes Part Way

By and large, the way to avoid strikes by municipal employes is to meet the employes part way. Notice that I said

part way, not half way. If the employers will meet them just a little way and do it in good faith, the amazing patience and forbearance of public employes will be demonstrated. The proof that workers are long suffering is found in the conditions which prevail frequently in public service. If employes were not patient to a fault in some jurisdictions, they would become desperate, a condition from which any situation might arise.

Democratic Practices Urged

To avoid strikes, public officials should avoid cloaking themselves in "sovereignty" and wounded dignity when considering employe problems. Talk of divided allegiance by politically-minded administrators has a hollow sound in jurisdictions where employes are expected to have sole allegiance to a political party. Let officials practice democracy rather than talk about "sovereignty" or divided allegiance, and a long step forward will have been taken in employer-employe relationships.

Patience and Fortitude Needed

Many officials are very busy searching for precedents in administration and in law to justify their wish not to take intelligent and constructive action in dealing with their organized employes. Solution of public personnel problems as they arise constitutes a daily challenge. They often require thoughtful application, serious consideration, patience and fortitude. Probably because they severely test one's ability to cope with difficult human relationship problems, too many officials seek to avoid them. Many officials reach out graspingly for power in every direction, except this one. Such officials—and they are the ones generally involved in strike situations—are most adept at finding excuses and reasons for not discussing employe problems with their employes. To such officials, we say that public employes are normally intelligent, and they have normal desires and aspirations. Even though their ideas about rights and privileges may sometimes seem quaint and possibly unreasonable to the officials, it should not be forgotten that they are Americans and should be dealt with accordingly.

Editorial Note.—On the relationship of municipalities to labor unions and laws affecting strikes by public employes, see discussions by Charles S. Rhyne, Executive Director, National Institute of Municipal Law Officers, in* The American City *for February 1946, page 139, and July 1946, page 5.

Peaceful Settlement Advocated

By MAYOR EDWARD J. JEFFRIES, Jr.
Detroit, Mich.

I KNOW of no way that strikes by municipal employes can be avoided. I think the law is very plain that a work stoppage, or rather a refusal to work, on the part of employes engaged in a governmental operation, is tantamount to revolution or insurrection. However, when the employes walk off the job, you have a strike; and the city administration has one of two choices —either to go along with the strike or attempt to break it. Either course is usually highly distasteful. On the one hand, it is an action of force against instituted government; on the other hand, the alternative is the use of force, always distasteful, to make the strikers conform.

I imagine the only solution is public opinion.

I see no reason why municipal employes should not organize for their own improvement. On the other hand, I feel that it is a violation of our whole philosophy of government for them to exercise force through strikes. They have so many channels open to them for peaceful settlement of their problems that are not available to employes in private business.

Labor-Management Committee

By GEORGE N. SCHOONMAKER
City Manager, Toledo, Ohio

RELATIONS with our public employes have been of the best, with no strikes or threat of strikes having confronted us, in spite of the fact that almost all employes of this city, including the Fire Department, are organized under the leadership of the American Federation of Labor. The Police Department has its own organization, known as the Fraternal Order of Police. In addition thereto, the majority of employes enjoy civil service protection.

You inquire about the operation of the Toledo Industrial Committee, which consists of eighteen members. This is known as the Labor-Management Citizens Committee, with six members representing each of the three groups, resulting in the total membership of eighteen. The committee has received nation-wide recognition and to date has accomplished an outstanding public service in its capacity of referee.

In instances where the services of the committee are required, panels of one representative from each group sit in while labor and management negotiate and attempt to settle the dispute. Because of the fact that all of the eighteen members of the Labor-Management Committee represent the most outstanding persons that the city could select, their influence alone has had tremendous weight in connection with its success. When they are asked for advice and direction, it has been given, but usually they do not force themselves upon the contestants in the issues involved and will only cooperate when both sides have asked for their services.

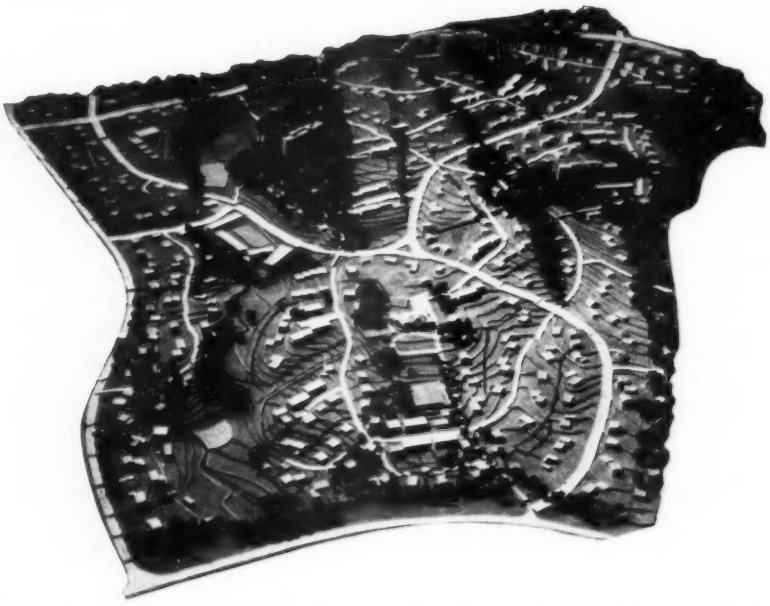
FWA Administrator Urges Five-Billion-Dollar Construction Reserve

IN THE event of an unemployment emergency, state and local plans for public works construction so far completed have failed to reach a volume sufficient to help stabilize the construction industry for even one year, Major General Philip B. Fleming, Administrator, told Congress on January 9, in submitting the annual report of the Federal Works Agency for the fiscal year 1946.

A reserve of at least $5,000,000,000 of completed plans for state and local public works should be available at all times, General Fleming said. Such a reserve, he estimates, would be necessary to assure an annual minimum of $3,500,000,000 of state and local construction, to be supplemented by $1,500,000,000 of federal construction to make up a total of $5,000,000,000. These figures are based on the assumption of a national income of $150,000,000,000 as necessary for reasonably full employment, with new construction making up 10% of it, or $15,000,000,000, and public construction accounting for a third of all construction.

The items in the present reserve of planned state and local public works aggregate only $3,200,000,000, according to the report. Noting, moreover, that the planning programs now under way "were undertaken only to meet a single post-war emergency," General Fleming points out that "Congress has made no provision for continuing assistance to state and local plan preparation after June 30, 1947." The report notes, too, that the present programs provide no control for "timing" construction of the planned projects.

Plans for A



This study model, based on the tentative development plan for the project of the Bannockburn Cooperators, illustrates the rugged terrain and the space advantages to be gained by the use of multi-family dwellings in the project.

PLANS have been advanced for a "balanced community" to house approximately 600 families on a site of 124 acres in Montgomery County, Maryland, just over the District of Columbia line. This proposed development has brought enthusiastic praise from architects, planners, and prospective residents. At the same time, the technical staff of the Maryland-National Capital Park and Planning Commission has given its blessing to the idea in a detailed report. The whole project has been followed with close attention by the city and county press in news, editorial, and real estate sections. Encouragement has come from institutional investors. However, residents in the neighborhood of the proposed development have expressed vociferous opposition.

How Project Began

The background is this: The Bannockburn Golf Club, with a beautiful and rugged terrain, put up to auction in April, was purchased for $193,000 by a cooperative corporation composed largely of professional workers in federal agencies. Associated architects Rhees Burket, Joseph Neufeld, and Vernon DeMars were retained to study the site and recommend the best possible use of the property for from 500 to 600 families with a variety of housing needs. Four months' work on the site and with a scale model resulted in a plan characterized as "inspired" by Hugh R. Pomeroy, Director of Planning for Westchester County, New York. Since the plan called for a mixture of single houses, multiple dwellings, and a shopping center in an area zoned for detached dwellings, an application for rezoning was presented to the Commissioners of Montgomery County. In spite of expert testimony in its favor, the application was flatly rejected.

Proposed Plan

The plan presented (Plan B) proposes the mixing of different kinds of dwellings in one neighborhood—350 detached homes, 75 units in semi-detached houses and in "garden" duplexes, and 3 elevator apartment buildings to accommodate a total of 150 families. Because of the concentration of families in the apartments, sufficient land would be set free to provide about 30 acres of interior park with recreational facilities, including a swimming pool, tennis courts, ball fields, etc., in addition to 5 acres reserved for a school. A shopping center, planned to cover about 2.8 acres, screened from adjacent residential property by hillsides and trees, is provided in the interior of the project.

Since present zoning for the area is restricted to detached houses on lots of not less than 5,000 square feet, an application was made to rezone 40 acres of the interior for multi-family construction, with the stipulation that the owner would enter into a legal agreement with the county commissioners to hold the over-all density on the 124 acres to 5 families per gross acre. Under present zoning, up to 6 families per gross acre would be possible.

Border Strip

A border strip varying in depth from 150 to 250 feet, to be occupied by single family homes, is proposed around the entire project. Lot sizes in this border strip correspond to lots of residential properties immediately adjacent, and houses will match in character those already existing. Thus, the new project will flow naturally into the already established community. The interior portion will have detached homes, as well as the garden duplexes and the three apartment buildings.

Each apartment is set in a park of several acres.

The alternative to the proposed plan, shown here as Plan A, follows a conventional subdivision scheme. Because of the rugged terrain in the interior of the tract, development of a community composed entirely of detached houses would require intensive use of the level border land in small lots in sharp distinction to adjacent residential properties.

Planning Commission Report

The report on the applications for rezoning made by the technical staff of the Maryland National Capital Park and Planning Commission includes the following comments:

These petitions are not the ordinary, run-of-the-mill Zoning Amendment Petitions generally presented to the District Council for its consideration. Rather, they embody together a challenging and thought-provoking proposal to create a complete community, having certain characteristics and features which its proponents believe to be eminently sound from a planning, social, and economic standpoint. . . .

The applicant asks for 75 acres of apartment house zoning; he needs only a fraction of that area to accomplish his purpose, as set forth in the plan—but, since, under the present ordinance, there is no way to accomplish a mixture of dwelling types, except by permitting one-and two-family dwellings to be built in apartment house zones, the applicant has simply drawn a line on his map around ALL the area in which he has apartment dwellings and has requested zoning for it.

One might well ask: "Why can't the plan be developed in such a way that all the apartments are concentrated in one or perhaps two places, instead of being scattered throughout the interior?" That can be done, but it would not be the most satisfactory scheme from a design or living standpoint. The architects are taking full advantage of topography and of existing

A Cooperative "Balanced Community"

A zoning change is asked to permit construction of three multiple dwellings and a shopping center, which would enable more intelligent use of terrain

wooded areas, preserving as much natural beauty as possible, in an effort to create a community which will have the impression of good living and beauty to those who view the area from beyond its boundaries, as well as to preserve the maximum in amenity for those who are to live within the area.

"What advantages are gained by the resident of such an area and of what benefit to the region as a whole is the type of development proposed here?", can be answered in part by an examination of the applicant's plan. It becomes apparent almost at once that a resident here, whether living in a one-family house or in an apartment house, would have *greater benefits* and *more wholesome living conditions than are generally found in other communities.*

First of all, the whole community is a cohesive entity, planned at one time, with all facilities and components in harmonious balance. There are no heavy traffic streets *through* the community.

The shopping center, planned in the beginning, is placed where it will intrude least upon adjacent residential development. The school site is set aside now for future use. It is within the neighborhood; children will not have to cross highways to get to it. The internal park and recreation system planned here has its counterpart only in a few residential areas adjoining regional or other parks, which have been acquired by the public.

Regarding regional benefits, it can be pointed out that the planned community is a stabilizing influence. This dispersal of apartment dwellings, for those who use them, in small groups through large-scale developments and by controlling the overall density, keeping it at or near those established in one-family areas, will prevent in a large measure the ill-founded land values which result from speculative large area apartment house zoning.

The planned community also promotes the *orderly* development of the region and makes it possible to *plan and program* community facilities without having these plans upset by unexpected and unjustified increases in potential density because of too much of a concentration of apartment house zoning.

The opposition of neighboring property owners was given as the only reason for rejection of the application by the Montgomery County commissioners. The cooperative corporation owning the land plans to proceed with the development, with or without rezoning; and alternative plans for a project composed entirely of detached houses, retaining desirable features of recreational facilities, are also being prepared.

Another effort will be made to gain approval of the "planned" community and to obtain the necessary rezoning in the spring. By that time a careful scrutiny of the two plans and their potential effect on surrounding values may have considerably lessened the opposition to the multiple dwelling plan.

Right: Plan B reveals the greater amount of park space that will be available if the requested zoning changes are granted. Note especially the less intensive use of the land on the border as compared with that in Plan A.

Below: How the project will be subdivided into small individual lots if the zoning change is not approved.

Bannockburn Heights
PLAN A
BANNOCKBURN GOLF CLUB
DEVELOPMENT TO BE CARRIED OUT (UNDER EXISTING RESIDENTIAL "A" ZONING) IF REQUESTED REZONING IS NOT GRANTED

The Wauwatosa leaf blower, designed by R. G. Everist, is shown tackling a pile of leaves.

Engine of the blower. The discharge section of the fan fits against an opening in the truck.

How Two Wisconsin Cities Built and

Wauwatosa and Shorewood, suburbs of Milwaukee, have had vacuum leaf loaders built in their city shops to solve their leaf collecting problems

TWO more communities join the parade of those who are solving their leaf collection problems mechanically. Wauwatosa and Shorewood, Milwaukee suburbs, are using vacuum leaf loaders of similar design. On a calm day crews can collect a pile of leaves in about one-fifth of the hand-loading time. Work can proceed on windy days also, when hand-loading proves virtually impossible.

The Wauwatosa loader was built at the express request and under the direction of Mayor William B. Knuese. It was designed by R. G. Everist, superintendent of equipment for the city, and was built in the Wauwatosa shop by the city mechanics in the summer of 1946. The body of this loader, which uses about a gallon of gas an hour, measures 12 feet by 6 feet by 5 feet, a height determined by the lowness of the ceiling in their garage.

The specially designed fan and 4-cylinder, 20-hp Wisconsin motor was mounted on the frame between the cab and the dump body. The fan runs between 1,500 and 2,000 rpm while the maximum speed of the engine is 2,200 rpm. A V-belt drive takes up any shock caused by the sucking in of rocks or large pieces of wood. The 10-inch-diameter telescoping suction pipe is strapped to the side of the truck when going to the dump and is easily attached to the fan with a quick-acting cam type of clamp. The fan discharge slopes up and butts against the truck body and does not require disconnecting to permit the body to be raised when dumping. At first the suction nozzle rested on the ground, but this brought in too many stones. By raising it about 2 inches and equipping it with a guard, most of the stones were eliminated.

Above the dump body, a closed wooden stake body about 5 feet high has been built and lined with burlap. This part is removable so the truck can be used for regular work at other times. The back gate is hinged at the top so no clearance trouble is experienced when unloading.

As only one truck is at present available in Wauwatosa, it is felt that the most effective use is to pick up piles which have been scraped together. When there are not many leaves, the truck moves along and sucks them from the gutter. Mayor Knuese has ordered the machine to be operated until 9 p.m. each day, not only to keep the streets clear of leaves but also to let the residents see how it works.

The loads in Wauwatosa vary from 2,500 to 4,500 pounds, the average being about a ton and a half. The moisture content is a big factor in the weight. The men can load a few more if it means finishing a certain section. While the fan does a relatively dense packing job, no trouble has been experienced in unloading. The Wauwatosa loader uses about a gallon of gas an hour.

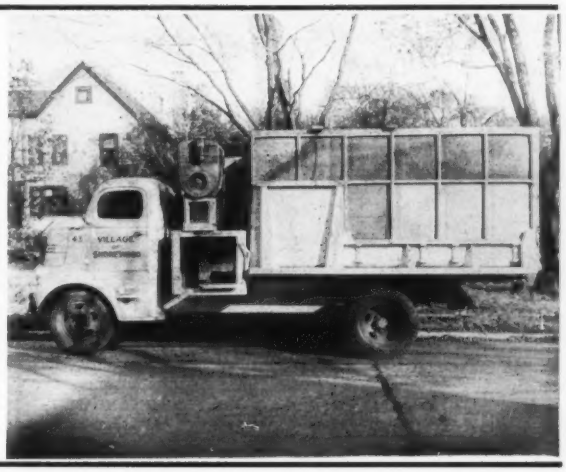
Before being put into regular service, it was tried experimentally. Eight-pound building bricks passed through the fan and did not stop its operation. Mr. Everist says the fan will break dry tree branches of up to about an inch in diameter. However, these branches aren't too big a factor, since long pieces cannot negotiate the bends. If the inlet piping clogs, the piping can easily be removed.

During the experimental period, cinders from the street sweeper were loaded, but the abrasiveness caused excessive wear. So far this year, 200 tons of material, mostly leaves, have been collected.

Shorewood Uses Two Loaders

Shorewood has two loaders, one built in 1944 and the other last summer. The first machine was designed by Ray D.

This Shorewood leaf loader, built in 1944, mounts its fan and engine behind the truck.



This second loader mounts its fan and engine behind the cab as does Wauwatosa's loader.

Are Operating Vacuum Leaf Loaders

Sullivan, commissioner of public works, and built in the Shorewood shop under the supervision of George Vorel, chief mechanic.

The rotor of a 9-inch Bayley blower was mounted on the shaft of a 1-cylinder, 6-hp Briggs and Stratton motor. This equipment, mounted on a two-wheeled trailer with solid tires, can be attached to any type of truck. Shorewood uses a dump truck with a closed burlap-lined body similar to the one described for the Wauwatosa loader and has a 17-cubic yard capacity. A large inner tube connects the fan discharge to the top of the rear end of the wooden body. This first loader uses about a half gallon of gas an hour.

The second leaf loader is considerable larger than the first and was built in the Shorewood shops under the supervision of Mr. Vorel. It is mounted between the cab and body on a Dodge cab-over-engine truck normally used by the forestry department. A 4-cylinder, 20-hp Wisconsin motor drives a 12-inch American Blower directly. The mounting is high enough to discharge horizontally into the top of the special wooden body. The horizontal discharge prevents material from falling back into the fan in case of stoppage. A telescoping 12-inch-square opening is hooked to the wooden frame. This must be unhooked when dumping. The 10-inch diameter suction pipe is attached to the fan with a rubber elbow.

Both Shorewood trucks have the same size bodies—12 feet by 6 feet 9 inches by 5 feet 8 inches—and are lined with 1-inch chicken wire to prevent the burlap from bulging when the fan is running. The top of the 1946 loader had to be reinforced because the new fan had more pressure than the old one; the old one is satisfactory, but cannot load as fast.

Mr. Sullivan says no clogging troubles have been experienced. He demonstrated by stuffing a large wad of tomato vines into it.

The suction pipe of the Shorewood machine is not taken off when going to the dump.

The wire-supported rubber elbows have been wearing out rather fast and a newly designed rubber elbow is now being built by one of the large rubber manufacturers.

In Shorewood, when the leaves are wet and packed, Mr. Sullivan uses a special tractor to brush them into a pile. Five standard street brushes are bolted to a snow plow harness on the front of a tractor. Two of them are at an angle to keep the debris in front of the tractor, and a ¼-mesh wire guard prevents them from spilling over.

Philadelphia Dredges Its Settling Basins

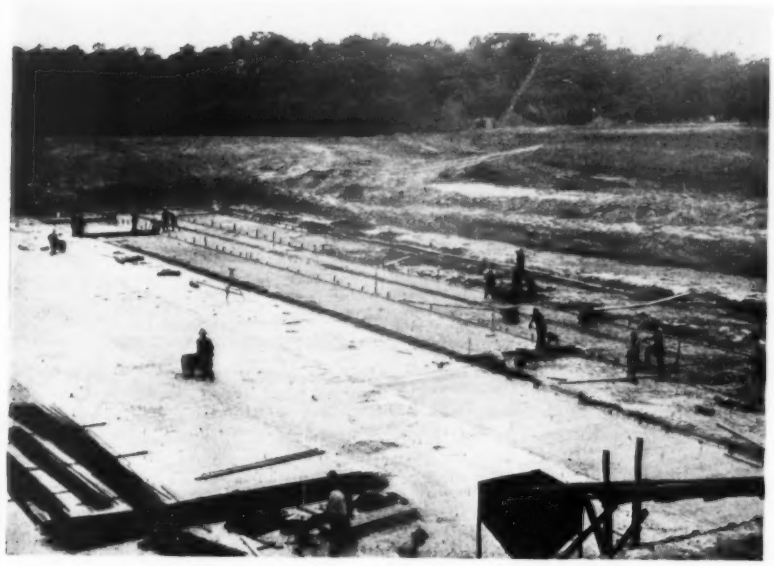
LAST YEAR, for the first time in more than half a century, Philadelphia's big Roxborough reservoir, consisting of two settling basins, was cleaned. The work involved removal of 157,000 cubic yards of coal silt and sediment and required 100 days on a 24-hour basis. It did not involve any interruption of water service.

The cleaning operation called for a 15-inch, 600-hp, electrically operated suction dredge, which pumped the sediment through a 16-inch pipeline carried on pontoons from the dredge to the reservoir embankment and thence to nearby land where it was used for fill. In 1927 engineers tried dewatering the reservoir and flushing the sediment through pipes, with little success.

The reservoir is divided into two basins, each 900 feet long, 350 feet wide, and 26 feet deep. Its nominal capacity is 147 million gallons at a 25-foot water depth. After being used continuously for 55 years, however, one basin had lost 40 percent of its effectiveness and the other, 25 percent. Soundings by water department engineers showed a sediment depth of nine feet in one and four feet in the other. Turbidity in the Schuylkill river that at present furnishes Philadelphia's water supply averages 100 parts per million. The Roxborough reservoir removes 90 percent of this.

The work was conducted under the direction of Elbert J. Taylor, chief engineer of the water bureau; Joseph E. Gill, principal assistant engineer, and Edgar Tohlen, construction engineer, inspector of the progress of the work. The cost of the work ran to $170,000.

The Houston Sewerage Program



The new Simms Bayou sewage treatment plant, now under construction.

OVETA CULP HOBBY, wartime commander of the WAC, once said that she believed she would like Houston if they ever get through building it. J. M. Nagle, Houston's acting city manager, has no desire to discourage the WAC commander, but he nevertheless hopes that Houstonites never do stop building. Sound, aggressive construction, he feels, represents a desire for progress, and his program of sewer and sewage treatment improvements aims at providing service to just such a type of city.

In few cities is complete sewage treatment more seriously needed. Houston ultimately empties its treated sewage into its vitally important commercial link to the rest of the world, the Houston Ship Canal.

The upper reaches of this stream at periods of low flow contains as much as 50 to 60% of sewage treatment plant effluent. Even discounting the public health hazard, untreated or partially treated sewage is scarcely an inviting waterway for ocean-going steamers, nor is a sludge-filled waterway good sailing.

The new sewage treatment plant and sewerage system construction now under way for Houston consolidates the six existing plants, only one of which is actually adequate, into two plants big enough to handle the load. To do this, they will utilize the one adequate plant and build a new one. Treatment in the new plant is planned at a 20-mgd capacity for the present and will aim at a capacity of 40 mgd for the future.

A little study of flow figures will show how badly overloaded these sewage treatment facilities are. One of the six plants, with only 0.4-mgd normal capacity, is handling 1.4 mgd and giving it primary treatment only. Another, an activated sludge plant with 4½-mgd capacity, is being forced to treat 9½ mgd and is commendably effecting 65% removals. Still another, a trickling filter plant, has a capacity of 0.5 mgd but handles 1.25-mgd flow.

Engineers' Estimates

In designing the new Simms Bayou plant, Houston's engineers, under the direction of W. E. White, chief design engineer, based their work on careful analytical data. The present sewered area they determined as 19,000 acres, with an additional tributary area of 23,000. The connected population runs to a figure of 162,000. However, they based their design on an estimated 1960 population of 225,700. The present per capita flow of sewage is 75 gallons, but for a conservative estimate they ran this up to 87½ gallons.

The engineers are preparing for a strong sewage. Their estimates anticipate a BOD of 225 ppm and a suspended solids content of 250 ppm. They expect 37 ppm of nitrogen as free ammonia, a trace of hydrogen sulphide and a pH of 7.2. In their treatment they expect to remove 92 to 95% of the BOD and suspended solids, bringing the former to 11-18 ppm and the latter to 12-20 ppm. They will allow the sewage to leave the plant carrying roughly 8 ppm of nitrogen as ammonia, having the pH unchanged, and having a dissolved oxygen content of 6 ppm.

In making an estimate of the hydraulic capacities of the plant, their figures show an immediate flow averaging 12.5 mgd with a daily minimum of 6 and a daily maximum of 18. They are expecting an average flow of 20 mgd and a maximum of 30 for the year 19460. Future flows, which the plant can be expanded to meet, will run 40 mgd for an average and 60 mgd for a maximum.

To furnish treatment, the plant will use as its first step a set of mechanically cleaned bar screens with 1-inch openings, with a Rex Triturator reducing the coarse material. The Triturator has a capacity of 2,000 pounds per hour and, operated intermittently, returns the grindings to the raw sewage for removal by primary settling.

From here the sewage will pass through a Parshall flume with float-operated indicating and recording gages. All flow will pass this point except in an emergency, when a remotely located by-pass is called into service.

The next step is grit removal. Provision is made for two 28-foot Dorr Detritors with a 2-foot water depth. For the immediate construction, one 22-foot Detritor is being brought in from one of the abandoned plants and enlarged to 28 feet. The design makes provision for installing duplicate equipment as conditions may require.

Primary settling is incorporated in two tanks 90 feet in diameter, with 9-foot side water depth, and equipped with Dorr sludge removal and skimming equipment. They will provide a detention time of 1.03 hours at an average flow of 20 mgd, with an overflow rate of 1,570 gallons per square foot per day. Here again, the design will permit increasing the present capacity by 2.8 times without difficulty.

For aeration, the plant is getting six tanks, each forcing the sewage to pass down the length and back. The tanks are 263 feet long, have a 22-foot inside width, and a 14-foot liquid depth. In aerating 20 mgd of sewage and returning 30% of the raw sewage volume, the tanks will retain the sewage for 6.3 hours. If they aerate without re-aerating the return sludge, the detention will be increased to 6.95 hours. The ratio of tank area to diffuser plate

A 36-million-dollar program of storm sewers, sanitary sewers, and sewage treatment plants is enabling this fast-growing southwestern metropolis to provide adequate service to its bustling population.

area is roughly 10.8. All tanks are of the spiral flow type and will provide for re-aerating the return sludge for varying lengths of time up to 2.8 hours. At any time, aeration or re-aeration can be adjusted in any tank, and re-aeration can be provided, or omitted.

Air for the aeration process will be supplied by two positive displacement Roots-Connersville blowers. Air to each tank may be varied as desired, the air supply to each being indicated by meters. The blowers operate in parallel on a common header, each protected by return flow valves and each equipped with intake and discharge silencers.

The return sludge is metered and regulated independently for each tank by gate valves on the discharge side of venturi meters. The sludge will be returned by two Fairbanks-Morse 2,800-gpm centrifugal pumps. One pump works at a variable speed and one at a constant speed. Foxboro return sludge meters indicate and record for each of the six separate tanks.

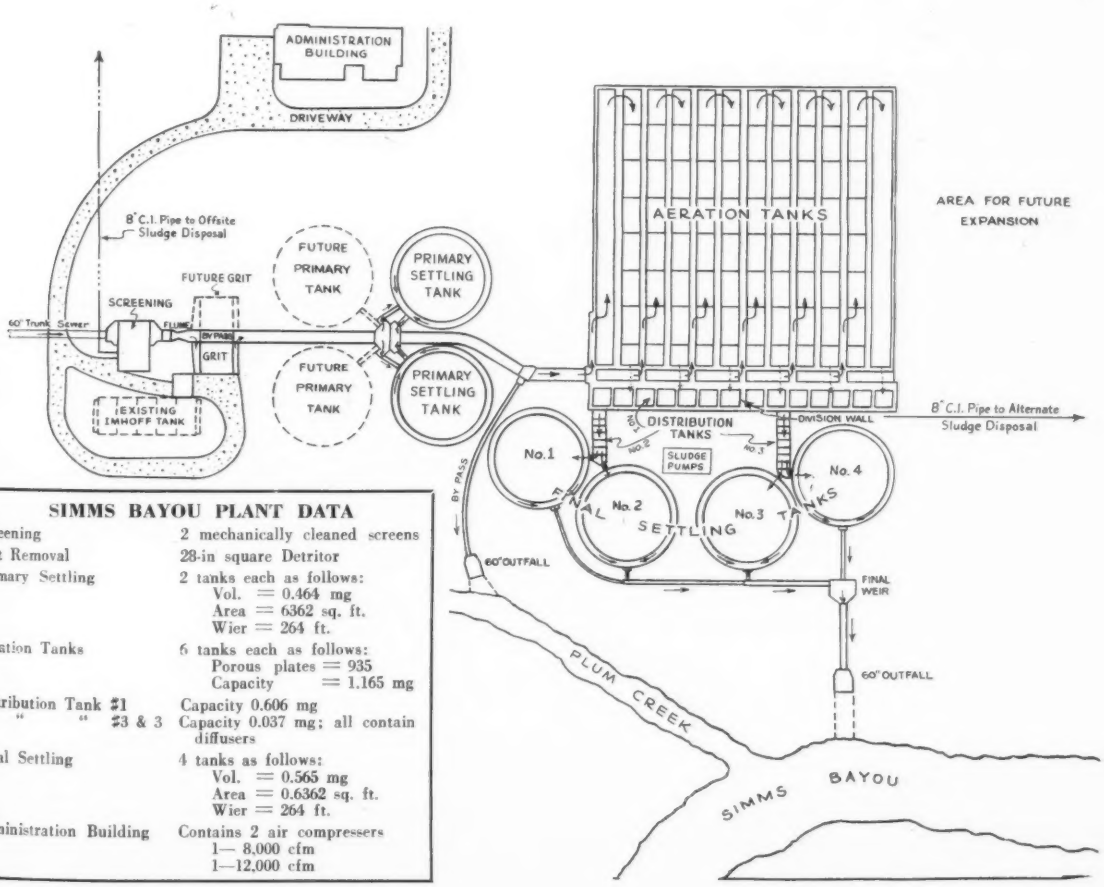
Final sedimentation takes place in four 90-foot diameter tanks equipped with Dorr sludge removal equipment. Two of these are new and two are modified from existing 75-foot diameter tank equipment. The tanks, with 11-foot, 4½-inch side water depth, are designed to provide 2.6-hour detention at 20 mgd and an overflow rate of 788 gallons per square foot per day. Initially only three tanks are to be used, the fourth to be held in readiness as the load may require. Sludge removal is independent for each tank and is regulated by the operation of telescopic valves.

From the final settling tank, the plant effluent goes through 36-inch and 48-inch-diameter concrete sewers to a wier chamber containing a contracted, sharp-crested, fully ventilated wier, equipped with a recording meter. As conditions may require, a Wallace & Tiernan chlorine feeder will provide final chlorination as the treated effluent passes into Simms Bayou through a 60-inch pipe, and on to the ship canal less than a mile downstream.

At present, sludge disposal is provided in the largest Houston plant, (average flow 19 mgd), by production of 7 tons of fertilizer daily, and lagooning the excess. The fertilizer is sold in bulk, at about $16.00 per ton.

Activated sludge disposal by lagooning the raw sludge has been the principal method of disposal in Houston for many years. But the rapid growth of the city and building up of the entire metropolitan area is forcing this method into the realm of "the good old days", without regard to its economy or convenience. Final plans for a permanent sludge disposal plant have not been completed for either of the two major treatment plants which will result from this program; but concentration of all sludge at one of the plants and disposal by mechanical filtration, followed by incineration or fertilizer production, is indicated.

The work is under the direction of J. G. Turney, director of public works.



SIMMS BAYOU PLANT DATA

Screening	2 mechanically cleaned screens
Grit Removal	28-in square Detritor
Primary Settling	2 tanks each as follows: Vol. = 0.464 mg Area = 6362 sq. ft. Wier = 264 ft.
Aeration Tanks	6 tanks each as follows: Porous plates = 935 Capacity = 1.165 mg
Distribution Tank #1	Capacity 0.606 mg
" " #3 & 3	Capacity 0.037 mg; all contain diffusers
Final Settling	4 tanks as follows: Vol. = 0.565 mg Area = 0.6362 sq. ft. Wier = 264 ft.
Administration Building	Contains 2 air compressers 1— 8,000 cfm 1—12,000 cfm

One City's Water Supply

By GEORGE R. LOWE, JR.
General Manager
Columbus Water Works
Columbus, Ga.

A CITY grows as fast as its water department—no faster. The growth of the water works is almost invariably the best indicator of the growth of the city. In 1897, Columbus, with a 10,000 population, used an average of one million gallons of water per day. In 1917, this use had grown to 2.3 mgd for some 25,000 people; in 1927, 4 mgd used by 45,000 people; in 1940, 7 mgd for 75,000, and during the past summer, when we have had to serve some 130,000, we have had peaks of 13 mgd. Thus for the last half century we have been operating under that well-known control figure of 90-100 gallons per capita per day. This steady growth had required thoughtful long-range planning to provide these services—planning, incidentally, that has resulted in the completion this year of a 10-mgd filter plant addition and the award of contracts for 9 mgd more capacity, giving us an ultimate plant capacity of 23 mgd with a 25% overload.

Public water supply in Columbus began in 1839 and operated from cisterns in the street into which rain water was diverted and then pumped to the desired level. This primitive type of service was used for three years, when the growth of the city and the need for more adequate fire protection dictated that other means be provided.

Improvements Still Inadequate

As we look at them today, the "improvements" were equally primitive and insanitary. They consisted of a dual system that supplied fire protection to twenty-five hydrants at the business intersections and a few residential intersections and supplied drinking water through taps, also located at various street intersections. The modern water works man would shudder at such a cross connection, yet the people at that time felt that they had made real advances in supply and protection.

For fire protection the system would draw on the river supply, pumping during the fire and cutting off the pumps when the fire was extinguished. For general household use and drinking, the system tapped a spring and delivered the water through a series of pine-log pipes of 3- and 4-inch inside diameter. For distribution, a set of wood pipes of smaller size tapped this trunk main, if it may be so called, and riser pipes with faucets were installed at various intersections, allowing the people to come with pitchers and buckets, paying the seller 5c per full vessel or the then existing rate of $25 per thousand gallons—undelivered.

Today, in contrast, our present water price is 15c per thousand gallons, or 3½c per ton—delivered and guaranteed pure.

Private Company Supplies Water

In 1882, the city entered into a contract with a private company that agreed to supply water from a set of impounding reservoirs. The company owned about 50 miles of pipe and approximately 250 fire hydrants in its distribution system. This company's contract was to supply the city with pure and wholesome water for a period of thirty years, but the company soon broke its contract by failing to supply the quality of water promised.

I have talked with several representative citizens living in Columbus at that time, and they testified that the odor from the water was so bad at times that one had to leave the bathroom while the tub was filling and then thoroughly ventilate before a bath was possible.

The birth of the present water commission came about through a bill approved by the legislature in 1902. For two years, the new commission investigated methods to improve the water supply and to select an adequate source. Thorough engineering study indicated the Chattahoochee River as the logical source, and in 1913 the city held an election that resulted in issuance of bonds to build its new water system.

During 1914, the city purchased the holdings of the private company for $335,500 and awarded contracts amounting to $450,000 for a new supply. This consisted of a pumping station on the bank of the river, a 20-mg raw water reservoir, a filter plant with 6 filters with rated capacity of 6 mgd, and a 2½-g clear-water reservoir from which the city was supplied by gravity through a 24-inch cast iron main. The distribution system consisted of 60 miles of cast iron mains, ranging from 4 to 24 inches, with 550 public fire hydrants.

This served until the drought of 1925 pointed to the need for more filter capacity and the commission added two

Three of the operating tables are shown on this side of the filter room. In the other half of the room, out of view, is a similar set.

History shows how growth and expansion of the water supply at Columbus, Ga., affects the city's growth and prosperity

more filters, each able to treat one mgd. The same year, construction began on a second 24-inch cast iron supply line, and in 1928 two more 1-mgd filters were added, bringing the total filter capacity to 10 mgd.

By 1941 the city's growth indicated the need for more treated water storage, and the commission built a 3-mg clear water reservoir at a cost of $100,000, increasing the plant's clear water storage to 5¼ mg. This addition is of reinforced concrete and is built entirely underground and covered with 18 inches of soil.

At a cost of $200,000, we made some useful additions to the plant in 1943. A second 24-inch cast iron raw-water line was laid from the pumping station to the reservoir at the filter plant, which made it possible to pump 15 mgd instead of ten. We also constructed a three-story chemical head house with modern chemical feeders and two mechanical mixers. These improvements made a better class of water possible before filtration, thereby relieving the old filters of a very heavy purification load.

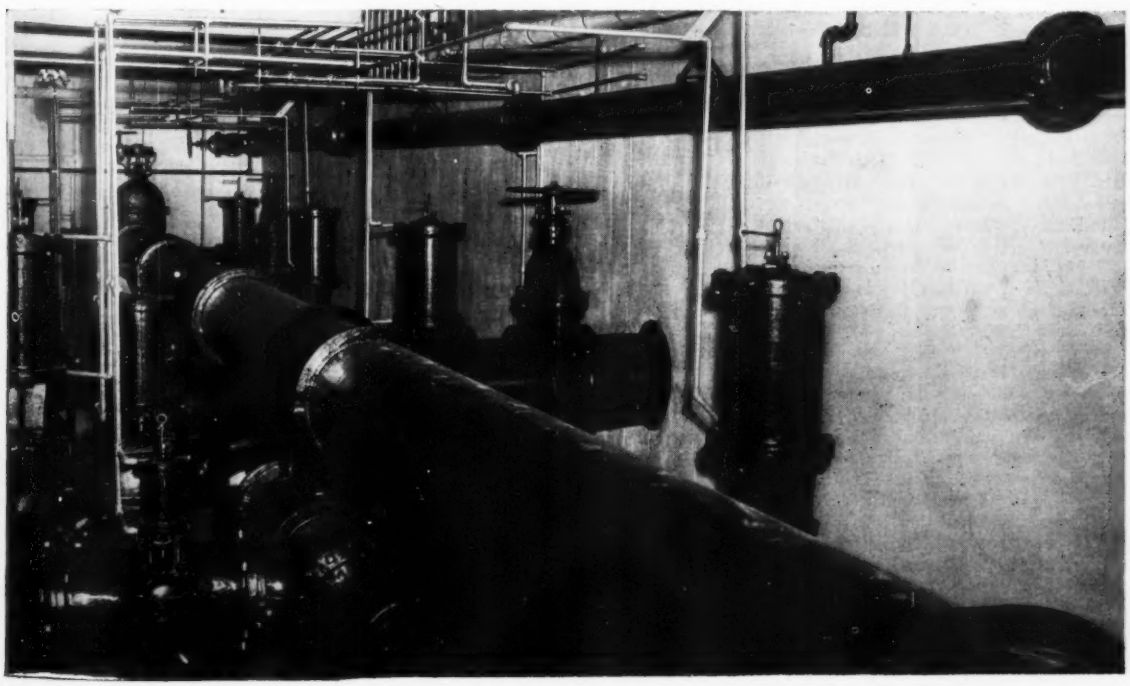
The equipment in the chemical head house included two Wallace & Tiernan chlorinators of the manual control vacuum type, with a combined capacity of 400 pounds of chlorine per 24 hours. These chlorinators are for pre-chlorination only. By using careful laboratory control, we can make the water respond to breakpoint chlorination and retain a residual of 0.1 ppm throughout the system.

Other Equipment

We also have five dry feed machines for feeding alum, lime, clay, and activated carbon. The two alum feeders are Omega gravemetric type, having a feed range of 3 to 300 pounds per hour, with extension hoppers to the storage floor above. The scales for each machine are arranged to weigh accurately the chemicals on a conveyor belt with a variable speed drive and control mechanisms with suitable sensitivity to control the weight on the belt and the amount of the feed with an accuracy of 1%. Each machine is provided with a mechanical totalizer, a rate-of-feed indicator, and an adjusting device and alarm system which operates at 2% variation from the set-feed rate. The other three feeders are Omega volumetric type, with ranges of 25 to 2,000 pounds per 24 hours. These machines are connected with a hopper to the storage floor above. We can store two carloads of alum, one carload of lime, a half carload of carbon, and a half carload of clay at one time.

By this time, some of our materials were obsolete. Of the ten filters, six were over twenty-eight years old, and, since a filter should not serve over twenty-five years, the water board awarded a contract for an additional 10-mgd filter capacity controlled by Iowa hydraulic valves from Bachrach operating labs. This construction was completed this last season. The cost of the improvement ran to $200,000, and the project brought the filter capacity to 20 mgd. On August 28 of last year, we awarded another contract for an additional 9-mgd filter capacity, which, when completed and running, will give us a total capacity of 23 mgd with a 25% overload.

Today, the distribution system consists of more than 125 miles of cast iron mains, from 4 to 24 inches in size, with over 700 fire hydrants. There are over 13,000 services supplying more than 100,000 customers, and every service, including those to the various city-owned properties from which no revenue is collected, is metered. In comparison, 25 years ago the distribution system was only 40% metered, and 15 years ago, only 66% metered.



The small pipe on the top is a 6-inch supply line operating the hydraulic apparatus. The 20-inch pipe below this is the influent header; at the bottom is a 16-inch effluent header.

British Opinion on the Government's Town and Country Planning Bill

(See pages 5 and 67 of this issue)

Comments of F. J. Osborn

Welwyn Garden City
Author of "Green-Belt Cities"

A MEASURE to deal with the great outstanding issue of compensation under planning has long been expected. Now that the Town and Country Planning Bill 1947 comes, it proves to be far more than a compensation-betterment bill. It sweeps away the present system of planning control and substitutes a new one.

The proposed new technique clearly springs from acceptance of the brilliant analysis of the financial and legal implications of public planning in the Uthwatt Report of 1942. But the thinking has been carried a further stage forward.

Under the new bill, express consent by the planning authority is required for any new development or change of use. The decision becomes a matter of judgment rather than of mere interpretation of a binding scheme. But the authority is to be guided in its judgments by a broad development plan, to be prepared within three years, and dealing with such matters as the limits of towns, the stretches of rural land to be retained for farming, the number of people to be accommodated in the area, and the amount of land needed for their various purposes.

Preparing the Development Plan

The making of this plan is entrusted to the County and County Borough Councils only. Where necessary, they may be required to set up joint boards. Each plan will define the areas within which early development is desirable and may designate for compulsory acquisition any land likely to be wanted for public purposes. The plan is subject to the approval of the Minister, after a public inquiry. It must be revised every five years.

Within this broad plan, detailed lay-out will be worked out only when development is imminent. Detailing may be delegated to the smaller authorities of the area, who must also be constantly consulted throughout the process. Theirs, too, will be the job of approving proposals for development; and it is they who will carry out any constructional work necessary to supplement private activity. For if a landowner is not willing or able to undertake development when and where the plan calls for it, land can be compulsorily acquired from him and developed by the authority or leased to private enterprise for that purpose. Thus the bill adds a positive side to a new and more plastic system of public control of land use.

Development Rights

Though the land will remain mainly in private ownership and an owner has scope to develop within the plan and the power of initiative, his right to change the use of his land at will disappears. For this he is to be compensated. Neither under common law nor statute has he a legal claim to compensation for a right he has never exercised. But public sentiment recognizes that a new restriction imposes hardship. This has deterred planning authorities in the past from such desired restrictions as the reservation of agricultural green belts around towns.

The bill therefore proposes to pay *ex gratia* compensation to the owners whose land is depreciated in market value by the cancellation of the development rights. A sum of £300,000,000 is set aside as a "global" fund, for distribution to owners whose land prior to the bill had development value, in ratio to the respective market values. As to whether the amount is adequate, there will be violently conflicting views.

As some offset to the cost of compensation, the bill provides that on any consent to development the owner will pay to the Central Land Board (to be set up under the new system) the value of the development right, in part or whole. But on existing properties the owner retains any increase of value, so long as he does not change the use or add more than 10% to the bulk of his buildings.

The Central Land Board will also reimburse local authorities for compensation paid by them for restrictions of use or density within their areas. And the bill increases the state grants for redevelopment of war-damaged, blighted, and obsolete areas. It also gives local authorities taking land for this purpose powers either to build themselves or to lease land to private enterprise for building.

Too Collectivist? or Too Individualist?

The bill is necessarily controversial. So radical a change in the rights and finance of land ownership must be hotly debated. A vulnerable point is that the formulae for the payment of the global compensation and the collection of development charges are left for "legislation by order." Parliament may require more definition on these matters.

Altogether the bill is a notable example of British legislative resource. It is not nationalization; it leaves land ownership and management mostly in private hands. But it lifts from private owners the decision on use and character of development, and any substantial interest in speculative values. It opens the door to piecemeal public acquisition where there is any good public reason. Right and Left will shoot at it as too collectivist or too individualist. Whether or not it can be called a "middle-of-the-road" bill, probably it is well enough in the fairway to pass the obstacles on each side.

This is essentially a planners' bill, and planners must applaud it. It relieves them of the impossible task of trying to balance compensation and betterment. It places planning under the national budget. But in giving planners inspiring opportunities, it puts on them a heavy responsibility. To achieve the most public satisfaction with the least private exasperation, they have to become very wise, very shrewd, and very speedy in their judgments.

Comments of J. H. Warren*

General Secretary, National Association of Local Government Officers
London

FOR years past there has been a realization that earlier planning measures were ineffectual and had not carried town and country planning beyond the stage of paper schemes—most of which were unsatisfactory and could do little more than prevent complete chaos by negative restrictions instead of promoting positive planning to meet social needs and amenities and settle industry in a suitable and economical milieu.

The bill has three main objectives: (1) to improve the administrative machinery of planning; (2) to give the local authorities the financial means for implementing adequate planning proposals; and (3) to secure for the community the unearned increment in land values which would otherwise accrue to the landowner when land was developed, while at the same time compensating land-owners who suffer hardship through public requirements.

"Shifting" and "Floating" Values

It was felt by the expert Uthwatt Committee on Compensation and Betterment, which reported in 1942, that the cost to the community of planning schemes could be substantially met by the revenue which could justly be collected from land-owners who derived unearned increment from publicly created development values. The Uthwatt Committee pointed out that under existing legislation the local authorities

*In sending these comments on the Town and Country Planning Bill, Mr. Warren writes that he is doing so in his personal capacity, there not having been time for his Association to take official action.

had not been able, as was intended, to collect "betterment value" from landowners whose values had been improved by planning schemes; while on the other hand they would have to pay in the aggregate twice or thrice the global sum rightly payable as compensation for "injurious affection" or compulsory purchase. This situation arose out of the elements of "shifting value" and "floating value" which the report analyzed in masterly fashion. That a piece of land would be "bettered" was incapable of legal proof; the benefits of a planning scheme are so diffused that it could be argued that not that piece but some other would be benefited. The value "shifts."

On the other hand the value "floats." If a particular piece of land is to be bought or comes under planning provisions, it might or might not have been developed before the proposals were framed; but it could have been, and therefore a potential development value had to be paid. As other pieces are dealt with, a similar development value (based only on a potentiality or possibility) has to be included. It was disturbing to think of what the public had paid in this way already. What it would have to pay for really effective planning did not bear thinking of. Planning was stultified.

The bill is doubtless designed to cure the state of affairs revealed by the Uthwatt Report, but these comments are only being offered a day or so after the text of the bill is published, and, as they are necessarily very complicated, further study will be required to see just how, and how far, the bill is likely to meet the situation.

On the whole I consider the bill to be conceived on sound lines. There will be large parts of it which are non-controversial in principle, though they will come under close scrutiny in detail. Its effect on property rights, and the terms it holds out to landowners in general, are likely to be controversial.

Comments of A. W. Madsen

Secretary, The United Committee for the Taxation of Land Values London

THE bill is said to put a stopper on land speculation, to make land available for use, and to take for the public the increased values of land. This is all preposterous and most misleading.

The Government is committing the enormity of indemnifying, in the sum of £300,000,000 to be shared among them, the owners of just that land which is held speculatively for a rise in price—the land which has provided the most glaring examples of tax exemption and should long ago have been taxed at its real value (1) to bring in public revenue, justly, from this source and (2) to induce the owners to allow it to be used.

"Development value," for which landowners are to be compensated, has to be understood as the difference between the value of land if unrestricted in its potential use and the value it would have if restricted to its present use. Bought from the landowner will be this "development value" if a claim to the existence of such a value has been made and substantiated. Incidentally, this will involve two hypothetical valuations, most difficult because they will be isolated assessments, of every piece of land in question. The owner, his development value bought from him, remains in possession of his land and in enjoyment of whatever value attaches to it under the restriction that it is "condemned" to its present use. He will be free to sell the land for whatever price it will fetch. It is easy to see that, far from land speculation being ended, it will start afresh and be more vicious than ever.

The so-called "betterment" in this bill takes the form of a "development charge" presumed to be based on the now-discovered "development value." No person will be allowed to develop any land without standing good for the payment of this charge, which will be assessed by the new Central Land Board without appeal against its decision; and the Board has discretion to vary the charge, which may very well lead to sinister influence, collusion, and corruption. It is only on a change in the use of land for building operations that this charge is levied, and its incidence will be precisely the same as the existing rating system with its increased assessments whenever improvements are made—and incidentally the bill does nothing to amend that.

Penalizing Future Development

The developer will thus be subject, not only to the development charge, but to the penalty of higher local taxation. In addition, the price of land for development purposes will not be cheapened, since the developer will have to pay the landowner his price (as diminished, perhaps, by the restriction) besides paying for the development charge, and there will surely be every pressure exerted by the Central Land Board to take as much as possible up to the development value of the land in order to recoup the loss incurred by payment of compensation to the landowners. The standing barrier against the better use of land will remain, and where development is thereby stopped there will be no "development charge" collectible.

One can imagine the many anomalies and injustices. For example, consider two nearby sections of land, one already developed and the other about to be developed. In the latter case the betterment charge is exacted. In the former case the increased land value which will arise goes absolutely untaxed into the pockets of the landowners. They, benefited by the industry of others, will reap the harvest. And so, over the whole country, where land has already been built upon, and in all the settlements of man, in the hearts of cities and in their suburbs where increases in land value are constantly taking place by community influence of all sorts, the bill deliberately and expressly says that "increase in land value which accrues without development is left with the owner."

It is fantastic to allege that this bill will collect for the public the community-created values to which the public is entitled.

Comments of Arthur Collins

Fellow of the Society of Accountants and Auditors, London

THE dividing line between the expenses of real estate development to be borne by the developer, on the one hand, and by the governmental unit, on the other hand, has always been difficult to draw. Now we see in Great Britain where our present Government draws that line. That is where the shoe pinches, for while all political parties have realized the need for reform, the various party political views on the terms of purchase have differed greatly. It has fallen to the present Government to "cut the Gordian knot," as we say.

There will be keen controversy over the way in which the Government intends to deal with the value of the land and the control of the use of it. Fixing the basic value of private land at 1939 levels, for a start, will be criticized as unfair. It will be suggested that it is too restrictive upon private estate development to leave the developer without profit from his enterprise in development insofar as an increase in the value of the land is thereby created.

An Unsettled Question

What share of such increased value will be left with the developer and what will be appropriated by the state is not settled by this draft law, as published. Many cases of hardship can be quoted, such as those where real estate developers with long-term programs have acquired land which is still agricultural for lay-out in lots in later years. It is supposed from the bill that such land will be valued for the purposes of public acquisition at its agricultural price. In other words, does "betterment" begin with the acquisition of land long before it is laid out in lots, or only when buildings are placed on the lots? In any case, where is the incentive to real estate men to take the risks of land development? That is the kind of question which is now arising.

The need for this reform has been recognized by all political parties, for under existing law the proceedings for compulsory acquisition of privately owned land have taken a long time, and in the end there has often been a feeling (sometimes proved) that the price to be paid out of the public purse for private land was greater than the price would have been in a deal between a private owner and a private buyer. In addition, there has been a marked trend toward curtailment of the profits which have been made out of rising land values by estate developers and many other property owners—profits due not only to shrewd and efficient business management, but also to the provision of public services by the community at large.

Whether our experience in drafting these laws and in working them out in practice will afford useful guidance in the United States, no one can say, but I am sure that American planners will be interested to see how we get on.

Riverside, Calif., Builds Sewage Treatment Plant

Effluent from high-rate filter plant to be used for irrigation

RIVERSIDE, Calif., is replacing its overloaded sewage treatment facilities with a new bio-filtration plant that will furnish a high degree of treatment. Effluent from this plant will be used productively for irrigation instead of being wasted in a receiving stream.

Built on Three Levels

The modern plant, being constructed at a cost of $500,000, uses a natural 14-foot gravity drop to circulate up to 10 mgd of raw sewage among three levels. At elevation 707, on the first level, are laboratory and chemical buildings, digesters, screening, the Parshall flume, flocculators, primary sedimentation tanks, and the dosing siphon. At elevation 697, on the intermediate level, are the high-rate filters and secondary sedimentation. The sludge beds are being set at elevation 693, the low level. Sludge beds will be above the high-water mark of the Santa Ana River.

The consulting firm of Headman, Ferguson, and Carollo of Phoenix, Ariz., designed the new plant, and the job is being supervised by them. Planned for construction in 1941 to take care of the rapidly growing cities of Riverside, Arlington, and Home Gardens, the work was delayed by the lack of steel and motors until December 22, 1945.

In 1940 and 1941 the city of Riverside used its Bucyrus-Erie 15-B drag shovel to excavate a trench and lay a 24-inch vitrified clay pipe outfall sewer. This line was extended six miles west of the city to the site of the new plant. A connection was installed so the outfall lines from Arlington and Home Gardens can be connected later. The new plant will serve about 75,000 people at present, but the population is growing so rapidly that it may double in ten years.

Sewage Routine

Raw influent sewage will enter the plant on the upper level, and pass through mechanically cleaned screens and a Parshall flume, where chlorine or ferrous chloride will be applied. The Scott-Dorsey system of bacteria and odor control is planned, using 66 pounds of chlorine and 34 pounds of iron to make 100 pounds of ferrous chloride. The cost of this method of purification runs only $2.25 per million gallons of sewage.

The sewage will then pass to a Dorr flocculator, where it will be retained for thirty minutes. Then it will enter the primary and secondary sedimentation beds for a 2-hour retention period. Chain Belt sludge collectors will draw off most of the solids, and scum will be trapped in a scum trough. The solids will be pumped to the digesters, and the remaining liquid will pass through a Pacific Flush Tank dosing siphon.

Three 175-foot diameter trickling filters with Pacific Flush Tank distributors, 6-foot crushed rock beds, and a Plymouth tile underdrain system will furnish secondary treatment to the effluent from the primary tanks followed by treatment in two secondary sedimentation tanks that are 80 feet in diameter and have Dorr clarifying equipment. They are connected in series, with the second tank designed for chlorine contact.

Behind the secondary sedimentation tanks is an effluent Parshall flume with an automatic proportioning device, connected to a Wallace-Tiernan Type MAS-V chlorinator. This device will measure the effluent and feed in the necessary chlorine for purification. Effluent from the new plant will be pumped to agricultural country nearby and used for irrigation.

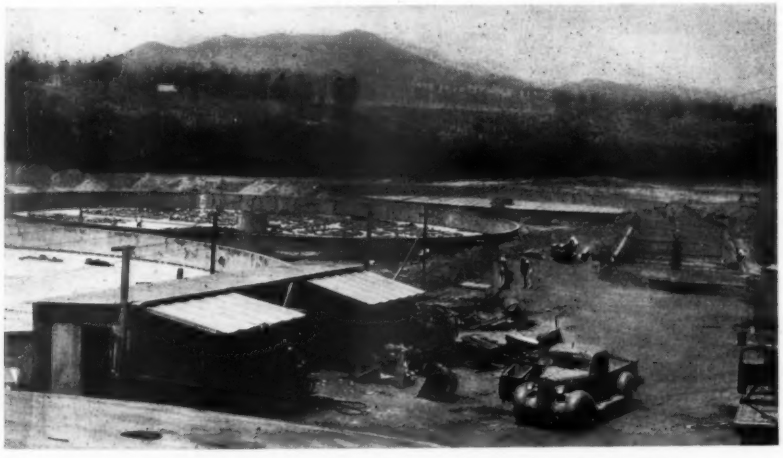
Two digesters, each measuring 40 feet in diameter by 19½ feet high, will reduce the raw sludge to a humus, and this organic matter will then be deposited in the 80,000-square-foot sludge bed area. The primary digester will have circulating hot water coils operated from a sludge gas-fired Bryant boiler. The primary digester has a fixed reinforced concrete dome designed for a working pressure of 3 inches. The secondary digester has a steel gas-holding cover.

The operating personnel for the new plant has been tentatively set at one superintendent and five men. This includes three regular operators with two standby operators, to substitute in case of sickness and to do odd jobs around the new plant.

Builders of Plant

The job is being inspected by the consulting firm of Headman, Ferguson, and Carollo. H. C. Parker, who has been employed as plant superintendent, was brought in as chief inspector to stay with the new installation during its construction. Parker will also direct plant chemistry when it gets under way.

L. W. Jackson is the resident engineer, and N. H. Daniels is superintendent for Hoagland-Findlay. Bill Hoagland is general manager of the contracting company.



A general view of construction on the 175-foot trickling filters.

Central Tax Accounting And Billing by Machines

Part II

By PAUL G. DE MURO

Commissioner, Department of Revenue and Finance, Passaic, N. J.

LAST MONTH Mr. De Muro told how Passaic, N. J., after a study of records used in the tax collector's office, adopted a plan of complete mechanization of this tax billing and accounting system.

* * * *

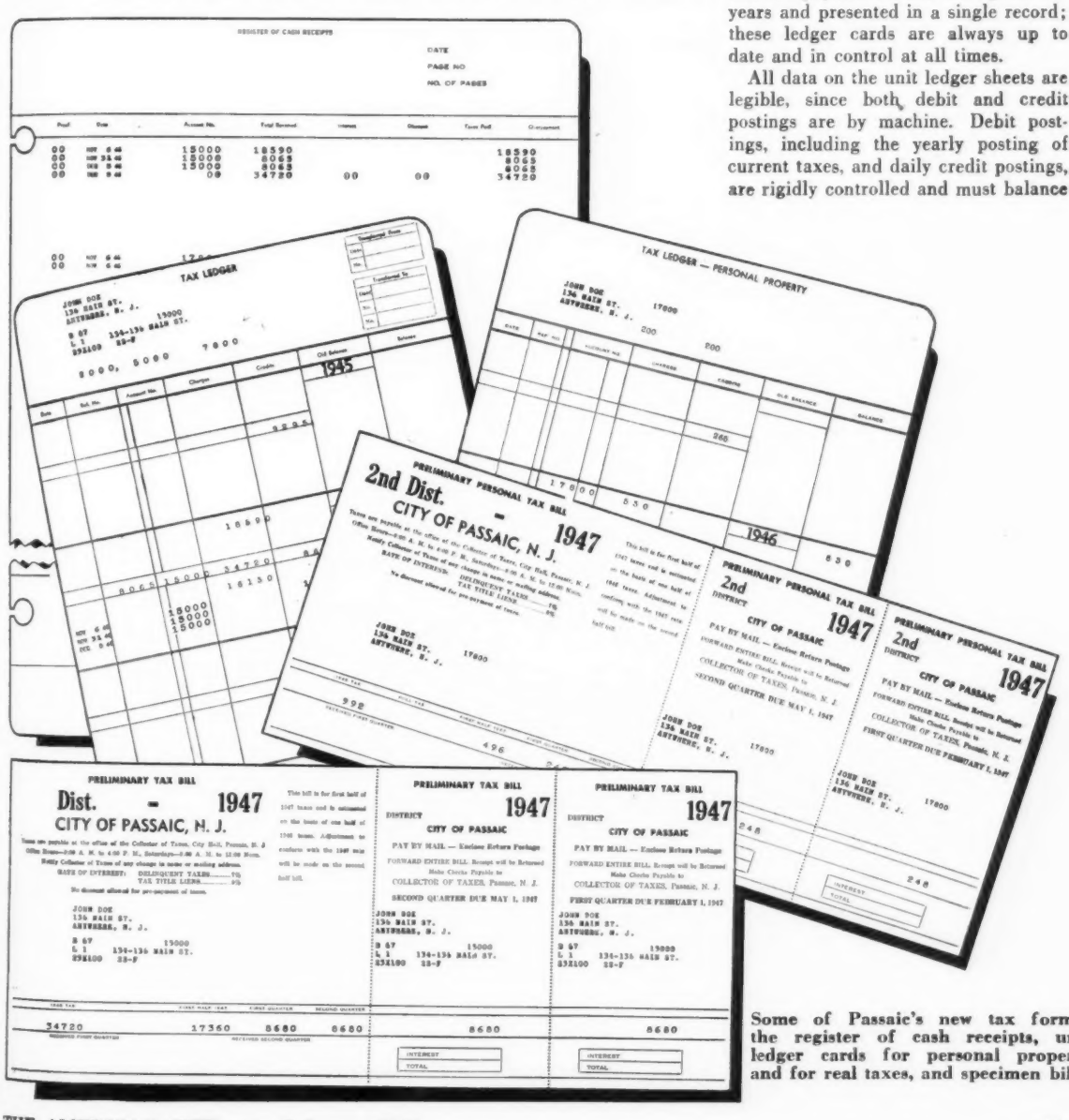
PREPARING the tax bills as a by-product of making the tax roll by Addressograph not only greatly reduces the time that would be required if the records were made separately, but guarantees that the amount of the tax must be identical with the charges on the tax roll.

In addition to the Addressograph and Graphotype [mentioned in the preceding article], two Sundstrand Automatic tax-billing machines were purchased.

In selecting the accounting and billing equipment, our criterion was efficiency of basic operations of unit tax billing and accounting. The computing and printing of the tax extension, which is an exclusive feature of this equipment, is extremely useful.

The speed and accuracy of the machine accounting resulted in the installation of unit tax ledger cards with detailed information about tax charges and tax payments made throughout the years and presented in a single record; these ledger cards are always up to date and in control at all times.

All data on the unit ledger sheets are legible, since both debit and credit postings are by machine. Debit postings, including the yearly posting of current taxes, and daily credit postings, are rigidly controlled and must balance



Some of Passaic's new tax forms: the register of cash receipts, unit ledger cards for personal property and for real taxes, and specimen bills.

to the penny. Delinquent taxes on the unit ledger card are, at the end of the year, automatically transferred to the tax lien ledger card.

In spreading the tax, the valuation is automatically multiplied by the tax rate. If the amount of tax contains a fraction of a cent of five mills or more, the amount is automatically increased to the next even cent. If the fraction is less than five mills, the fraction is automatically dropped.

The cash receipts journal is an original record. It contains a complete record of each tax payment, showing the breakdown of the items which make up the total amount paid. In the operation of cash receipting, proof is provided that all cash payments are posted to the correct unit ledger card. Totals of overpayments are automatically stored, and the stored total is automatically deducted from the "taxes paid" to produce a true taxes-paid amount for the posting to the outstanding unpaid taxes control. Whenever a cash receipt produces an overpayment, the machine automatically creates an overpayment voucher for that amount.

New Jersey Taxes Paid in Four Installments

The New Jersey statutes require taxes to be paid in four installments; the city of Passaic made use of a single bill which included the final installments (third and fourth) of the current year and the preliminary (first and second) installments of the succeeding year. Instead of billing, as in previous years, once a year, the taxpayers will receive tax bills twice a year. The new stub bill is prepared with the original bill and two stubs. The stubs are detached one at a time as each installment for a half year is paid. The tax collector retains the stubs, and the taxpayer retains the original bill as his final receipt for payment of both installments.

The tax bill and the charge posting to the unit tax ledger are made simultaneously. Proof is provided that billing has been made to the correct property owner and that the charge has been posted to the correct unit tax ledger card. When a payment is made, the tax bill and stub are receipted by the receipting machines. These machines will, in all probability, complete the installation of our modern tax system. Postings to the unit ledger card are made from the detached stubs. If the amount of "taxes paid" is greater than the balance of unpaid taxes, the machine will automatically print the overpayment in red in the balance column, and the machine will automatically stop at this point. The overpayment voucher will then be prepared.

Partial-payment ledger cards for taxpayers making partial payments are posted in the same manner as the regular tax ledger cards. When a credit balance sufficient to meet the tax installment has been created, a journal posting is made, charging the partial-payment ledger and crediting the tax ledger with the amount of the installment. Tax ledgers are posted directly from the stubs. In addition to stamping the ledger with the date payment was made, the receipt number is entered, thus affording a complete tie-up between the ledger posting, the taxpayer's receipt, and the stubs. When postings are completed, stored totals provided by the machine must balance with the control figure previously obtained by the cashier's office.

Gains to City and Taxpayers

Both direct and indirect advantages have accrued to the city from modernizing the work of the assessors' and tax collector's offices. Time-consuming routine tasks of endlessly copying and comparing longhand records have been eliminated. More compact, more legible records than were possible formerly are now written much more speedily and with far greater accuracy. Reliable checks and proof of the work as it progresses have replaced frequent "backtracking" to compare and read back former longhand copies of the books.

In place of handwritten bills computed from a chart, the bills are now computed, printed, and accurately balanced by machines. Books and bills must be in agreement. The installation has eliminated needless clerical routine and unproductive work and has released employes for the important jobs of improving assessment methods and carrying on a prompt and continuous billing and tax collection campaign. Twice the former amount of regular billing and posting of receipts is being accomplished in less time and with less effort, in addition to frequent rebilling of taxes not undertaken formerly.

A more active follow-up on delinquent accounts has materially improved tax collections and has in turn been a substantial factor in improving the city's credits. Changes in the collection dates in New Jersey, bringing the date for the first quarter payments within thirty days of the beginning of the fiscal year, and the city's ability to conduct a prompt follow-up of all accounts throughout the year have reduced the amounts formerly borrowed in anticipation of taxes and reduced total interest cost for such borrowings.

In order to derive full value from the diversified use of mechanical equipment, we have found that centralization of accounting and billing has greatly improved our office procedure.

The use of the equipment has resulted in very definite advantages. It is estimated that the cost of the first Sundstrand bookkeeping machine and Addressograph will be returned, in a period of three or four years, through direct savings in salaries of temporary help and additional permanent staff.

The cost of providing office space for additional staff was avoided. The speeds and accuracy of machine accounting result in detail ledger accounts that are up to date and in control at all times. A better internal check is provided. Legible records are assured. Audit procedure is simplified. No peaks of work are caused by tax or utility billing. Assessors and tax collectors are relieved of much detail work, and the time saved permits them to improve assessment procedure and tax collections. Office routine is also greatly improved. The centralizing of accounting and billing is paying dividends. Statements, balance sheets, and reports are produced on time. Finally, better service is rendered to the taxpayers through elimination of errors in billing and accounting.

New Traffic Signals For Philadelphia

A RECENT ordinance has appropriated to the Philadelphia Bureau of Traffic Engineering $350,000 for installation of new traffic signals and traffic signal systems, $125,000 for the removal of pedestal traffic signals at all intersections and the installation of corner post traffic signals at these locations, and $50,000 for the improvement of lighting conditions at locations in which night traffic hazards exist. The latter appropriation specifically mentions four traffic circles, three on Roosevelt Boulevard and one on Holmes Avenue.

Under the ordinance we have authority to hire temporary personnel and purchase the equipment needed to do the job. We have already placed orders for about $100,000 worth of signals, timers, conduit, and cable.

The Philadelphia Electric Company is cooperating with us 100% in the lighting program. Because of the scarcity of materials, we expect to use wood poles and brackets and fixtures which are now in stock. Our mounting height is 27 feet for the first installation.

ROBERT MITCHELL
City Traffic Eng.
Philadelphia, Pa.

Luncheon Meetings Promote Harmony in Dallas

By WOODALL RODGERS
Mayor, City of Dallas, Texas

BEFORE our present city council took office, the Dallas papers almost daily featured stories of the bickerings and arguments at council meetings—much to the embarrassment and chagrin of the citizens. Considerable public resentment was aroused at this lack of teamwork among council members and at the paucity of its accomplishments in determining city policy. As the result of action by an aroused citizenry, therefore, our council was elected from a representative group not heretofore connected in any way with political matters. A remarkable change for the better resulted, and we have now served the city in harmonious fashion, with little or no opposition, for almost eight years—twice as long as any previous Dallas council.

Why have we been so successful in getting our work done? Much of the credit can go to the late George B. Dealey, president of the *Dallas Morning News*, for his suggestion, the day after our election to the first term, that the Council should avoid public family quarrels. The idea then came to me that, as an aid in this direction, the council members should have lunch together and discuss mutual problems, as many businessmen do, before council meetings.

Each Wednesday noon we have been meeting for lunch at a downtown club. The lunches are pleasant and companionable, with repartee and story-telling prevailing. If any members of the council go deer hunting, we expect a venison dinner; if they go duck hunting, we demand that the results of the hunt be served to the entire council.

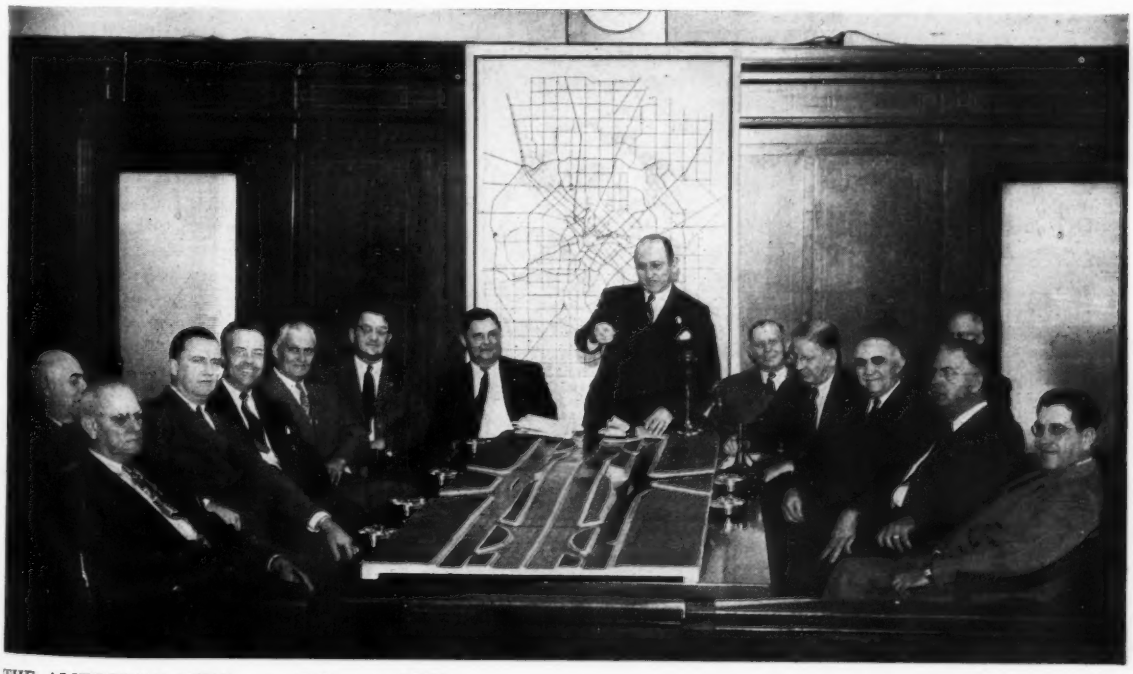
Informal Discussion Precedes Formal Meeting

The city attorney and the supervisor of public utilities always sit with us, as well as the city manager. It is chiefly the city manager who brings before us the problems of the day and presents the good and bad features of each proposition, along with his recommendations. On important matters each councilman is asked for his opinion, but in no case is any official vote or ballot taken. We merely "go to school" and study our problems, so that we will have a better conception of the controversial matters before reaching the council table.

The method we use puts every man on his honor and throws the searchlight on fallacious reasoning, biased opinion, and selfish interest. Quick judgment on municipal affairs is generally wrong, and this method has removed the possibility of a councilman's spending hours defending a hastily-assumed position to avoid admitting that he was in error. It even prevents a councilman from promoting the interest of one section of the city over another, because in the quiet of a room with his fellow councilmen his position is thoroughly analyzed, its weaknesses exposed and its virtues extolled.

The temptation for using the council as a forum for cheap publicity, politics, or debate has been removed. It has taught us to respect the opinion and vote of the other man regardless of whether or not we agree. But, above all, it has taught us the value of teamwork and harmonious dealings in keeping with good democratic action.

This shows the Dallas city councilmen with some of their department heads in session following a luncheon meeting. Reading from left to right are Councilmen O. W. Cox, W. B. Johnson, W. C. McCord; V. R. Smitham, city manager; Mayor Pro-Tem J. B. Adoue, Jr.; J. C. Bisset, director of public works; H. P. Kucera, city attorney; Mayor Woodall Rodgers (standing), J. W. Monk, supervisor of public utilities; Earl Goforth, city secretary, and Councilmen O. D. Brundidge, M. M. Strauss, and Bennett H. Stampes. City Plan Engineer E. A. Wood is in the right background. Councilman L. L. Hiegel was not present at the meeting.



Some Water Works Conference Notes

Fifty Years of Purification Advances

IN FIFTY years this nation has seen the typhoid fever rate drop from a point where it was almost as prevalent as measles, and looked upon as virtually unescapable, to a virtual rarity today. Although other sanitary control measures such as pasteurization of milk, inoculations, and sewage treatment have played an important part, purification of water was the principal factor. I. M. Glace, Harrisburg, Pa., consulting engineer and secretary-treasurer of the Pennsylvania Water Works Operators' Association, pointed this out before the Golden Anniversary meeting of the Pennsylvania Water Works Association in Atlantic City last October. Mr. Glace outlined briefly some of the major advances made in the field of water purification during the last half century. These were some of the salient points:

Five Salient Points

Typhoid Fever. Although reliable figures were not available in 1896, records indicated that in 1906 the United States had a typhoid case rate of roughly 250 per 100,000 people, with possibly 40,000 deaths each year. At the present time the death rate is only 0.4 per 100,000.

Purification. Chlorination represents the most important advance and the chlorinator the most important tool. The use of this chemical began in 1907 in the form of hypochlorite of lime, and in 1912 through the use of chlorine gas. Its use has advanced from merely an adjunct to filtration for a factor of safety to an integral part of the overall problem of purification. Other methods of disinfection in use include ozone, ultra violet rays, copper sulphate, and silver.

Filtration. This has in a single leap jumped from a rate typical of slow sand filters of 2 mg per acre per day a half century ago to the design rate of 125 mgd in modern rapid sand filters, and present studies by the AWWA indicate that greater loadings may be permissible. Actually the filter portion of the modern plant has become a relatively minor part and serves mainly as a polisher for a job already largely accomplished by the application of chemicals, mixing, sedimentation, and disinfection. Mr. Glace stated that he hoped that the misleading practice of rating a plant on the basis of its filter capacity would be dropped in favor of some more indicative yardstick.

Chemicals. Many chemicals enter into the processing of the water. Chlorine, alum, lime, soda ash, and activated carbon for taste and odor control have been the most spectacular. As late as 1931 only a little had been written on taste and odor control, but today practically all plants give some degree of consideration to the subject.

Plant Operation. Regarding filter operation and referring to the actual units, the development of a surface wash constitutes a considerable advance. Such practice combined with heavy pre-chlorination has finally solved the problem of clean filters to a great extent. Improvements in mechanical apparatus, such as rate controllers, loss-of-head gages, hydraulic valves, and non-corrosive filter bottoms all constitute factors that make operation today more simple than it was fifty years ago.

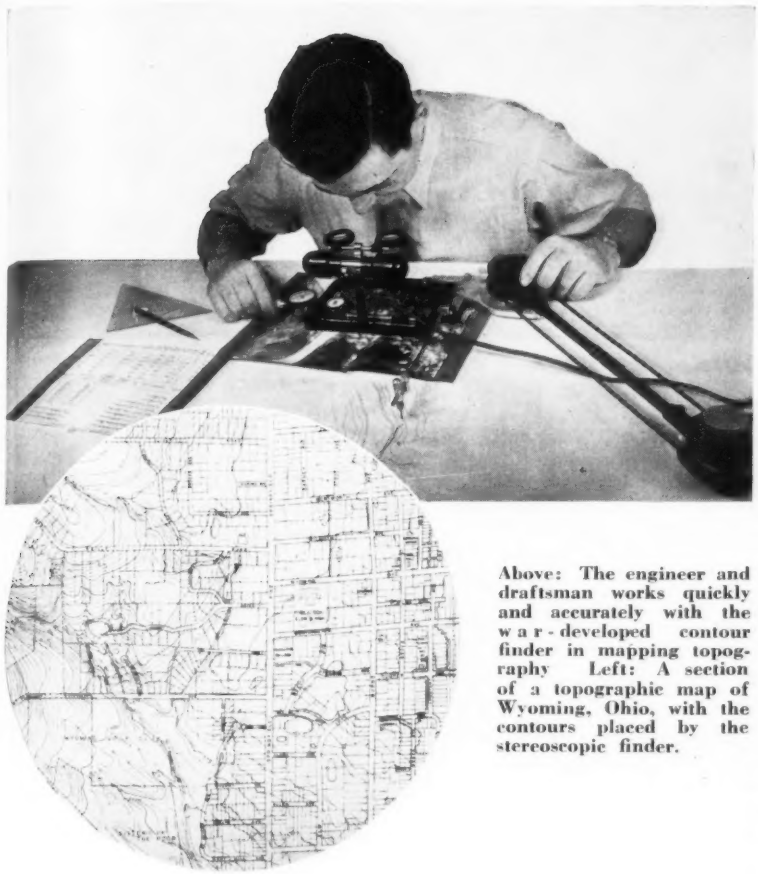
Future Offers Lower Operating Costs

VISUALIZE a fully automatic water works with attendance required only for on-the-spot supervision. Visualize a complete operating report given automatically over the telephone wires from any water works to a central supervisor. Picture a plant with stand-by equipment so arranged that in case of a shut-down automatic throw-overs would bring the equipment needed into service, and then think of automatic quality checks on the water that would indicate when the filters had to be washed and that would throw controls that would make this washing automatic. G. W. Knapp, engineer of the Water and Sewage Division of General Electric Co., Schenectady, N. Y., in a paper delivered before the Pennsylvania Water Works Association at the Golden Anniversary meeting, which was held recently in Atlantic City, N. J., made the prediction that modernization and mechanization ultimately leading to this type of operation will not only reduce expenses but will insure reliability and add to the plant's appearance.

Turbine efficiencies, while now excellent, are going to see greater improvements by means of metallurgical tests that have been in progress for the past ten years. There is no positive indication yet that gas turbines will replace steam; however, the possibility is very much present. Water services can look for even better electric rates in the future, since the demand is steady and can often be coordinated with off-peak loads. Thus electric motor drive can be accomplished with reliability, low investment, efficiency, and lower maintenance costs than in steam plants. Cost records also are more easily prepared.

Motor drives for a constant delivery pump can be furnished successfully by synchronous or induction motors. When variable delivery is required, however, the solution is not so simple. One easy arrangement involves the use of several constant delivery pumps of varying sizes. If fine, stepless control of delivery is required, wound rotor induction motors may be used, since they are susceptible to speed adjustments over about a 5-to-1 ratio. Magnetic slip clutches or hydraulic slip clutches may also be used. There is also a new electronic DC motor drive which does not use the loss principle for speed control and is therefore highly efficient. It consists of a DC motor which drives the pump, an electronic power rectifier that converts the AC power supply to DC for the motor, conventional switchgear, and more or less standard control circuits. Since the speed of a DC motor is proportional to the voltage applied to it, variable delivery requirements are met simply by changing the armature voltage on the motor, and not by loss effects.

The voltage selected for the power system in a water works has an important bearing both on the first cost and the operating cost, depending largely on the size of the motors to be supplied. Modern unit substations may be used to receive the power from the electric utility, transform it from the incoming voltage to the utilization voltage, and provide the necessary protective devices such as circuit breakers. The same philosophy can also be used to advantage with individual motor controllers. These can be purchased factory assembled in centralized groups of what may be called "control centers." With them it is necessary to make only one incoming line connection, since all the individual controllers are factory-connected to a common bus.



Above: The engineer and draftsman works quickly and accurately with the war-developed contour finder in mapping topography Left: A section of a topographic map of Wyoming, Ohio, with the contours placed by the stereoscopic finder.

Use A Contour Finder

—— and make planning and zoning studies more practical. A war-developed stereoscopic contour finder makes the work faster and easier

By FRED G. GEDGE, Chairman
The Hamilton County Regional Planning Commission
Cincinnati, Ohio

IN order to advise prospective subdividers intelligently in developing their land to agree with standards as set up in the adopted subdivision rules of any planning commission, it is necessary for those engaged in planning to study each plan submitted. In this connection, the presence of large-scale, detailed topographic maps in a planning office is almost indispensable. It is easy to visualize the advantage a planner gains by having on hand a tentative scheme of proposed future streets and recreational spaces to cover potential subdivision areas when a subdivider's engineer comes into his office with a preliminary plat for an opinion. By having advanced street plans on hand, he is in a good position to discuss in a comprehensive manner the general layout of streets as they conform to an over-all plan of existing and proposed public rights-of-way.

The Hamilton County Regional Planning Commission realized that, without detailed topographic maps, it would be inadvisable to prepare studies of future streets, and therefore authorized its executive director, William W. Kelly, Sr., to proceed with an aerial mapping program sufficient in accuracy and scope to meet the particular planning needs of their office. Because of a small staff and limited funds to carry on such work, the methods involved have been rather unusual, particularly in this locality.

Aerial photography has served as a principal source of information from which we have planned our mapping program. A piece of stereoscopic equipment, known as the Abrams Contour Finder, or vertical height finder, has been used in connection with aerial pictures to contour the ground, bring out the drainage, and locate wooded areas and various public and private developments. For horizontal and vertical control this office has had to depend on data obtained from the County Engineer's highway and sewer surveys. The coordinate positions of control points thus obtained have been plotted in accordance with a plane projection laid out on sheets to be mapped, which agrees with the same system used in making the 1912 Cincinnati Topographic Survey. Property division lines, according to the dimensions as shown on the Auditor's plat books, have been adjusted to the basic control as plotted on each sheet. Elevations based on sea level datum, as taken from road profiles and many other public and private surveys used in connection with aerial pictures, have made it possible to contour the ground by use of stereoscopic methods. The pictures, used in stereo pairs and properly fused under the stereoscopic contour finder, present the compiler viewing them with a plastic image of the ground and the objects constructed upon it. Proper fusion is accomplished by overlapping one picture with the other and bringing identical points as shown on both into perfect orientation with each other.

Operation of Contour Finder

With a certain amount of predetermined elevations accounted for at identifiable points on the ground, the operator is able to make different setups over them and proceed with the contouring and locating of other topographical detail. A floating mark as viewed through the stereoscopic lens can be raised and lowered so that it can be made to appear as though it is resting upon the surface of the ground. As an example, after starting off at an identifiable point with a known elevation, it is possible, by keeping the floating mark on the ground, to follow a certain contour around the hillside. The parallel drafting arm, with pencil attachment, records a line on the surface of an adjacent piece of drawing paper as the mark is moved by the operator of the instrument. Differences in vertical heights, determined for the purpose of checking between known elevations as the work proceeds, are made by taking readings of the attached gages, which record the X and Y movements of the floating mark. The gradations as shown on the circular gages attached to the instrument are divided into millimeters.

Preliminary to establishing any new

elevations or checking between certain points, for the purpose of carrying on the contour work, it is necessary that a determination of the parallax factor for each set of pictures be made. Then the parallax factor is used in conjunction with the floating mark movements as recorded on the gauges mathematically to compute vertical heights and establish elevations at different points.

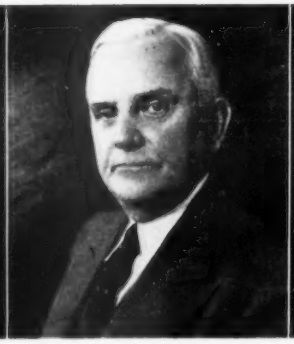
This unique method of mapping, as explained, is recommended only as a substitute for the real type of city survey every fast-growing municipalitity of considerable size should have in order to proceed intelligently with its engineering and planning work. However, in the absence of detailed, large-scale topographic maps and a knowledge of how and when the city fathers will provide such, it behooves planners and engineers, in the meantime, to make the best use of available material at hand, along with the talent they may have in their offices, systematically to quilt together some maps which can be regarded as reasonable substitutes and thereby provide a more dependable office way of studying the ground, particularly in connection with subdivision control and future street development.

Harvard Offers Fellowships and Scholarships in City and Regional Planning

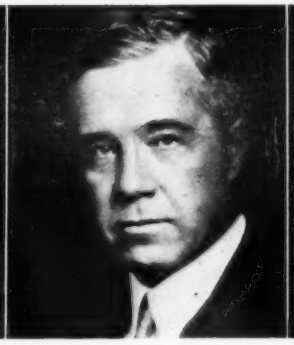
The Graduate School of Design of Harvard University will offer two or three fellowships for advanced study in city or regional planning for the academic year 1947-48. The stipend will not exceed $1,500 each. Applications should be made prior to April 1, 1947. The requirements are stated in the pamphlet of the Department of Regional Planning which may be obtained by writing the Secretary of the Department of Regional Planning, Hunt Hall, Harvard University, Cambridge 38, Massachusetts.

Applications for scholarship (covering tuition only) should also be submitted before April 1.

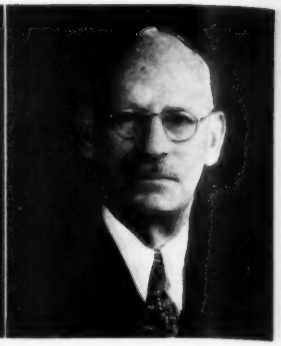
Leroy K. Sherman



Charles B. Burdick



A. W. K. Billings



A. P. Greensfelder

Civil Engineers Honor Four Members

FOUR civil engineers received honorary membership in America's oldest engineering group, the American Society of Civil Engineers, when it met last month in New York for its annual meeting. These new members include Charles B. Burdick of the Chicago consulting firm of Alvord, Burdick and Howson; A. P. Greensfelder, head of the Fruin-Colnon Contracting Co., St. Louis; LeRoy K. Sherman, Chicago hydraulics and hydrology consultant; and A. W. K. Billings, recently retired president of the Brazilian Traction, Light and Power Co.

Their Achievements, in Brief

Charles B. Burdick has devoted more than a half century of service to municipalities, with many brilliantly designed and constructed engineering projects to his credit. A pioneer in water treatment by the rapid-sand filter, Mr. Burdick was one of the first engineers to design large reinforced concrete filters and in recent installations has been responsible for 6¼-mgd units, the largest so far built. He is engaged, with others, on additional filtration for the city of Chicago that involves a capacity of 950 mgd. Recently completed work includes the 200-mgd plant at Milwaukee, an 84-mgd plant at Louisville, a 56-mgd plant at Denver, and more than sixty other plants. His firm has been active in the planning of continuing programs for water developments in many cities. Among these are Des Moines, Iowa (which has been following his program for the past forty years), Louisville, Ky., and Racine, Wisc.

A. P. Greensfelder, as head of the Fruin-Colnon Contracting Co., St. Louis, has been in charge of the construction of many of that city's important projects. More important of these include the St. Louis water basins, an intake tower, three reinforced concrete viaducts for the city, and the St. Louis railway terminal, as well as many industrial plants in the St. Louis area. Mr. Greensfelder was chairman of the Fruco Construction Co. in 1941 and 1942, which during that period was coventurer on the construction of the St. Louis Ordnance Plant, the largest small-arms ammunition plant in the world.

LeRoy K. Sherman, Chicago consultant, feels that he has made his most important contributions to the engineering profession since the age of sixty. He is best known for his origination of the unit hydrograph, which has been useful in designing important dams. During World War I, he was connected with the U. S. Housing Corporation, Washington, D. C., as president and director of the Bureau of Housing and Industrial Transportation. He has written many authoritative books and technical manuals on hydrology.

A. W. K. Billings, recently retired president of the Brazilian Traction, Light and Power Co., received his A.S.C.E. award chiefly in recognition of his work in developing the hydroelectric resources of the Sao Paulo-Rio de Janeiro area, for which he received the Brazilian Government's highest non-military award, the National Order of the Southern Cross.

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The Housing Crisis—
A Challenge to the Mayors

From a statement prepared for the annual meeting of the United States Conference of Mayors, Washington, D. C., January 20, 1947

By WILLIAM O'DWYER
Mayor of the City of New York

EVERY city in this country is confronted with a housing shortage so serious that it jeopardizes the health and family life of our citizens. . . . In such a situation, it becomes our duty as chief executives of cities to plan a course of action and take the steps necessary to solve the problem. . . .

Our first concern, of course, is to provide decent homes for veterans and other families who are now living under makeshift arrangements. But in considering the housing needs of our cities, we cannot ignore the terrible problem of replacement and rehabilitation of our deteriorated areas which affect the general welfare of our citizens and the financial stability of our governments.

A program of this extent requires the utilization of all our resources, private and public. Private enterprise can and must be permitted to do the major portion of this job. . . . It is evident, however, that private enterprise has not in the past been able to provide for the entire range of housing needs in the community, nor is there any reasonable prospect of its being able to do so. Only that portion of the job which cannot be done privately must be undertaken directly by government. This portion will vary in different cities. Even if we assume that private enterprise can and will undertake to build for three-fourths of the total need, in New York City there would still remain a governmental responsibility for about 200,000 apartments. This portion of the job alone is of such magnitude that it requires an active partnership of the federal, state, and local governments. In New York we have such a partnership, which has produced significant results over the years. I hope this partnership will continue on an expanded scale, because the greater portion of the task by far is still ahead of us. . . .

To solve this housing crisis within the reasonably near future, our cities need substantial sums of money now. The public housing requirements are of such magnitude that the federal government must continue as a major partner in this enterprise. To make this possible, the Wagner-Ellender-Taft bill was introduced in the last Congress. I gave it my full support, and I hope all of you did, even though the measure provided for only a small portion of the need. . . . When the federal housing bill is re-introduced, we must all support it energetically. We must convince Congress that it is essential for the welfare of our country. . . .

As mayors, we should also look to our states as full partners in this program to the extent that financial resources of the states permit. In New York I am urging a continuation of state aid by means of an additional $300,000,000 for loans to the municipalities, together with the corresponding subsidies to make low rents possible.

As mayors, we do not have to be reminded of the financial plight of our cities and of the strict limitations upon our powers. Municipalities are in the least favorable position to assume added obligations for public housing. Nevertheless, it is our duty to continue to explore every means by which cities may contribute toward the solution of the over-all problem of providing adequate living quarters for our citizens.

Rough Timetable Announced for U.N. Headquarters Construction

IN A RECENT radio speech, Wallace K. Harrison, director of planning for the projected United Nations skyscraper capital, praised the accessibility of the headquarters site in New York City, mentioning the possibility of helicopter landing facilities for airport shuttle service, and announced a rough timetable for construction of the headquarters.

Member countries of the United Nations have nominated outstanding architects and technicians to serve on a panel of ten, which will assist in the design and planning of the vertical headquarters. If preliminary drawings are approved by July by Secretary General Trygve Lie and by the General Assembly late this year, construction may begin in the spring of 1948. Depending upon the size of the development, it will require eight months to two years to build the United Nations center, which means that the job may be completed any time between November 1948 and March 1950, Mr. Harrison explained.

Immediate rezoning and replanning of the bordering area to the site has been urged by several civic groups and is being considered by the city government. Mr. Harrison, who is president of the Architectural League of New York and one of the designers of Rockefeller Center, believes it possible to transform the present site, now the home of gas stations and slaughter houses, into "a garden city of the world."

It was after more than a year of searching for a permanent headquarters site that the General Assembly of the United Nations voted overwhelmingly before its adjournment in December to accept the last-minute dramatic offer made by John D. Rockefeller, Jr., of land worth $8,500,000 and to establish a skyscraper world capital on the six-block, 17-acre tract along the East River in midtown Manhattan.

In accepting the conditions laid down by Mr. Rockefeller, New York City agreed to purchase an additional $2,000,000 worth of property adjoining the gift tract and to transfer this to the United Nations. The City has also pledged itself to grant the U.N. all rights to piers and bulkheads along the East River between 42 and 48 Streets, as well as to convey to the U.N. the five streets on the project site and a small city park.

The property will be exempted from taxation, and no payments will be requested in lieu of taxes. At present, the area yields an estimated annual tax return of $184,000. New York has also decided to provide customary municipal services, including police and fire protection, without cost to the U.N., and to supply water at established rates.

Recent City Manager Appointments

The following portraits are of city managers whose appointments are reported in this or preceding issues of The American City

Robert L. Price
Blairsville, Pa.

Clyde Dorsey
Monterey, Calif.

Samuel E. Vickers
Vallejo, Calif.

Arlen St. Louis
Schenectady, N. Y.

Thomas B. Noland
Altavista, Va.

G. M. Roberts
Lamesa, Texas

Carl B. Wirsching
Long Beach, Calif.

John S. Langford
Griffin, Ga.

JOSEPH N. ARTHUR, who has been on military leave since April 1943, is back at his post as borough manager at Avalon, Pa.

ROBERT V. BAKER has been appointed city manager of Kenosha, Wis.

EDWARD G. BAYUK, city clerk of Eveleth, Minn., has been appointed first city manager of Wayzata, Minn., effective March 1.

RAY E. BIVINS, a local business man, has been appointed city manager of Pawhuska, Okla.

HOWARD H. BURD, engineer for the State of Pennsylvania, has been appointed first borough manager of Mechanicsburg, Pa., as of March 1.

JOHN COLEMAN, former city clerk, has been appointed temporary manager of Shawnee, Okla., succeeding ROBERT C. HUTCHISON.

W. B. COLLIER, assistant city manager, has been appointed acting city manager of Houston, Texas, following the resignation of J. M. NAGLE.

W. O. COUNCIL has succeeded ROBERT G. JOHNSTON as city manager of Fuquay Springs, N. C.

ELMER R. CROSS has been appointed city manager of Excelsior Springs, Mo., to replace H. E. SWAFFORD.

WILLIAM J. DEEGAN, JR., former manager of Fernandina, Fla., 1938-41, Deland, Fla., 1941-42, and more recently serving as economic investigator for small business in Washington, D. C., has been appointed city manager of Superior, Wis.

C. R. DINWIDDIE has been appointed first city manager of Clarksville, Texas.

WILLIAM C. DRAGER, manager of Fernandina, Fla., 1943-45, and at Clifton Forge, Va., since September 1945, is manager of Williamsburg, Va.

R. J. EPPLEY, city manager of Washington Court House, Ohio, since February 1946, has become village manager of Greendale, Wis.

W. J. FICKLE, JR., has succeeded F. P. SPAULDING as city manager of Bristol, Va.

DANIEL W. FITTERLING, former member of the State Highway Department, has been appointed first borough manager of Hamburg, Pa.

J. L. FRANZEN, city manager of Oregon City since 1921, has been appointed first city manager of Salem, Ore.

ROY GIES has been appointed city manager of Lake Worth, Fla.

DAVID GOODMAN has replaced Garland Patton as city manager of Abingdon, Va.

JOHN F. HASSLER, city manager of Oakland, Calif., from 1933 to 1943, accepted reappointment there on December 9.

ERBIN E. JONES, city manager of Pawhuska, Okla., since 1942, has accepted the position as city manager of Shawnee, Okla.

LEW W. KEMP has replaced HOWARD FRANK as borough manager of Scottsdale, Pa.

JOSEPH V. LADNER, manager of Santa Rosa, Calif., from 1944 to May 1946, has been appointed city manager of Madison, S. D.

J. S. LANGFORD has succeeded RICHARD A. DRAKE as city manager of Griffin, Ga.

ELSTON A. LOTZ of St. Louis, Mo., has been appointed city manager of Brunswick, Ga. He succeeds F. J. TORRAS, manager there since 1931, who resigned December 15.

BOYD J. MCDANIEL, city manager of Big Spring, Texas, since August 1941, has been appointed first city manager of Abilene, Texas.

ROBERT L. MORRISON has been appointed city manager of Knoxville, Tenn.

BERNARD J. NODEN, a civil engineer of the city of Boston, has been appointed town manager of Mars Hill, Me.

THOMAS B. NOLAND, former apprentice at Waynesboro, Va., has been appointed manager of Altavista, Va., succeeding E. G. FITZGERALD.

JESS M. PARKER is city manager of Sweet Home, Ore., replacing C. K. HUSTON.

ROBERT PEART, city manager of Sterling, Kans., 1934-1944, and Neosho, Mo., 1944-45, has been appointed first city manager of Lebanon, Mo.

EDWARD C. PETERSON, who has been on leave from the managership of Middleboro, Mass., since 1944, resumes his position, replacing Acting City Manager ROBERT W. MACDONALD.

WILLIAM RICHARDS, executive secretary to the city manager of Phoenix, Ariz., has been appointed city manager. ODD S. HALSETH, who has served as manager since May, has returned to his former position as director of parks and recreation.

MRS. FELISA RINCON DE GAUTHIER has been appointed city manager of San Juan, Puerto Rico, succeeding ROBERTO SANCHEZ.

G. M. ROBERTS has been appointed acting manager of Lamesa, Tex., to succeed GORDON T. HILLS.

FITCH ROBERTSON, mayor of Berkeley, Calif., has been appointed city manager there to replace GERRIT P. VANDER ENDE, who has resigned to become president of the Federal Home Loan Bank of San Francisco.

ARLEN ST. LOUIS, city attorney, has been appointed city manager of Schenectady, N. Y.

G. O. SUMMERS, manager of Bryan, Texas, since 1943, became first city manager of Waxahachie, Texas, on February 1.

JAMES M. TITUS has succeeded A. C. NICHOLS as city manager of Daytona Beach, Fla.

JAMES G. WALLACE, city manager of Bangor, Me., 1932-41, Wilmington, N. C., 1941-42, and Kenosha, Wis., since 1942, has been appointed supervising engineer of Fargo, N. D. On May 1, the council-manager charter becomes effective, and his title will change to city manager.

B. H. WARREN, JR., has succeeded H. C. ROBERTS as city manager of Douglas, Ga.

HERBERT W. WHITNEY, former director of Public Works, has been appointed city manager of Big Spring, Texas.

P. A. WIGGINS has succeeded LOY NICHOLS as city manager of Burkburnett, Texas.

CLARENCE E. RIDLEY
Executive Director
International City Managers' Association
Chicago, Ill.

Conference of Mayors Adopts Important Resolutions

SEVERAL resolutions of importance to municipalities were adopted on January 22 by the United States Conference of Mayors at its meeting in Washington, D. C. On the subject of housing, the resolutions petition Congress for rapid passage of the Wagner-Ellender-Taft General Housing Bill; request additional funds to complete temporary emergency housing; advocate adequate and fair rent control until the housing emergency is over, and propose an advisory committee of mayors to consult with congressional leaders to formulate a housing policy and program.

Airports also received considerable attention. The resolutions ask that federal funds be made available for assistance to Class IV and V airports; oppose the state control of federal airport funds; request prompt payment to cities for damages to airport facilities used by the government during the war, and urge that the disposal be expedited of federally owned or controlled surplus airports and equipment to municipalities, counties, and states without cost, or on a maximum discount basis.

The conference also called for legislation to provide payments in lieu of taxes for federally-owned property within the boundaries of municipalities; asked that the time period be extended for the availability of funds under the Federal Aid Highway Act of 1944; requested the continuance of the federal flood control and public power policy; authorized a study by the Conference's president and executive committee to develop and formulate recommendations on the question of federal aid for public education; reactivated a special committee to see that cities receive fair treatment in the procurement of federal surplus properties, and urged a more equitable distribution to cities of state-collected revenues.

Boston and Concord Enter Housing Business

TAKING advantage of emergency housing legislation in Massachusetts, Boston councilmen recently approved a $10,000,000 program which will put the city in the veterans' housing business on an unprecedented scale. The plan, to be financed by a bond issue, calls for construction of 510 one-family houses and 520 two-family houses to shelter a total of 1,550 veterans and their families. The city will first rent the homes to ex-servicemen, but by 1952 will sell them all to tenants or other veterans.

A Massachusetts law enacted in 1946 declared a five-year housing emergency and gave municipalities authority to build, rent, and sell houses during that period, as well as also making special provision for slum clearance and redevelopment during the emergency. Cities may "appropriate and spend money" and take other action necessary to house veterans, "by purchasing or by taking by eminent domain" land tracts for housing development.

According to the National Association of Housing Officials, the city expects to regain more than $7,500,000 of its original investment from the rental and sale of the units if they are sold at half their original cost. The single-unit homes are expected to cost $7,800 apiece and rent for $50 a month, not including heat, light, and other utilities. The cost of the double units is estimated at $11,500 each, renting at from $40 to $45 a month each.

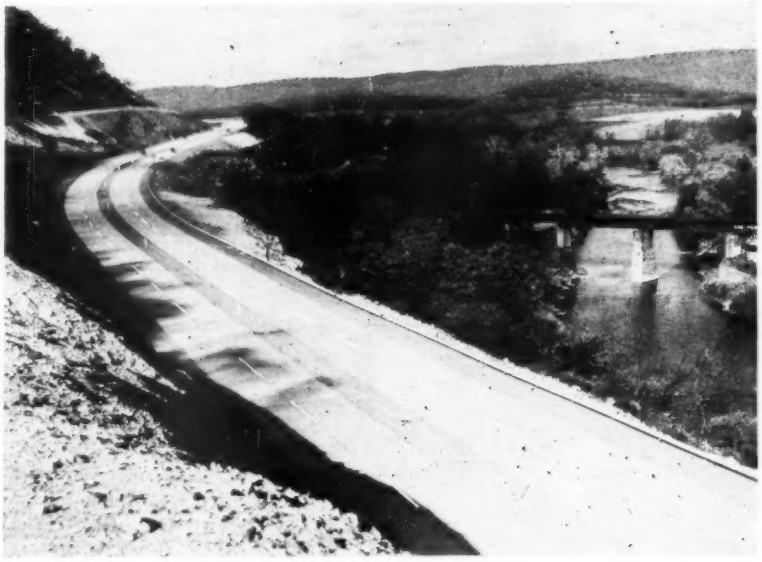
Another Massachusetts city that has appropriated funds for building homes for veterans under the new law is Concord. That municipality has earmarked $100,000 for this purpose, with which 20 one-family dwellings will be built.

Small Alabama City Seeks a Manager

ACTING under state law, the Mayor and City Council of Brewton, Ala. (1940 population 3,323), went on record on January 14 as favoring the city-manager plan of government and authorized the City Planning Commission to recommend for the employment within sixty days of a city manager, salary not to exceed $6,000 a year.

"The duties of the city manager," writes C. L. Harold, Secretary, Brewton Chamber of Commerce, "will be greatly increased when the city's natural gas system is installed and ready for operation, which is expected in November of this year. It is believed that a fine opportunity will be presented for skilled management in efficient operation of this gas system and the city-owned water works. Also, more than $300,000 of capital expenditures is being programmed for much-needed extension of the municipal water and sewer lines. It is hoped that the opportunities of this job will elicit worthy applications, which should be addressed to City Planning Commission, City Hall, Brewton, Alabama."

These PRISMO *Lines mean* SAFETY!



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The SPHERE of SAFETY

PRISMO SAFETY CORPORATION

Municipal Division

HUNTINGDON, PENNSYLVANIA

ZONING and PLANNING NOTES

Edited by
NORMAN WILLIAMS, JR.
with the assistance of
FRANK B. WILLIAMS
and
EDWARD M. BASSETT

Exclusion of Churches from Residential Zone — Local Property Owners' Option

ALABAMA.—*Pentecostal Holiness Church of Montgomery* v. *Dunn*, 27 Southern (2d) 561 (Alabama Supreme Court, June 20, 1946), rehearing denied, October 24, 1946.

Under the Montgomery ordinance for the A residence zone, erection of a building substantially different in type or size from those in the immediate vicinity required consents from the adjoining property owners within 300 feet along both sides of the street, and particularly from the two adjacent owners on all sides. If objections from the latter were trivial, or merely made to force purchase of their property, provision was made in the ordinance for the City Commission to override such objections.

A Protestant revivalist church was planned in such an area. The neighbors entered objections based on a charge that a commercial enterprise was involved rather than a church, on the volume of noise emanating from emotional frenzy in the services, and on doubts suggested as to the type of building which would result from the proposed use of volunteer labor. When the building permit was revoked pursuant to such objections, the church took its case up through the courts.

The Supreme Court first held that this was a legitimate Protestant church. Whether a zoning ordinance could exclude churches completely from residential areas was not decided; but it was held that the question could not be left to be settled in each instance in accordance with the desires of the neighboring property owners. Invoking the vague requirement under the Fourteenth Amendment for uniform and impartial rules of action, the Court evidently felt that such local option provisions involved the exercise of arbitrary discretion by adjoining landowners. The decision strongly reflects the rigid due process-property rights philosophy of constitutional law at the turn of the century, and the frequent complete judicial inability to think in terms of evaluating or permitting the evaluation of the operation of experiments in democratic neighborhood planning. See Bassett, *Zoning* (2d Edition 1940) 42-44.

Township Regulation of Cubic Volume of Buildings

MICHIGAN. — *Frischkorn Construction Co.* v. *Lambert*, 24 North Western (2d) 209 (Michigan Supreme Court, September 11, 1946).

Pursuant to authorization in the Michigan enabling act for township zoning, Redford Township (in Wayne County, near Detroit) adopted a requirement in a single-family residential zone that houses should cover 800 square feet on the first floor level and should contain 14.000 cubic feet. The Construction Company wanted to build two houses containing 12.657 cubic feet; it offered proof that additional cubic volume would add nothing to the convenience or usability of the proposed houses and might, in fact, add to the heating problem.

The Court accepted the theory that any size regulation prescribed in such zoning regulations can be justifiably applied only by a detailed showing of advantage in any given instance over all other suggested alternatives. Esthetic conditions and protection of the value of other premises in the neighborhood could be taken into consideration but were themselves insufficient to justify restrictions on the use of property. Since the Court failed to find that the larger size provided any further advantage to the public health, safety, or welfare, the attempted application of the zoning regulation to this situation was held unconstitutional.

Funeral Parlors in Residential Zones

MARYLAND.—*Ullrich* v. *State*, 46 Atlantic (2d) 637 (Maryland, April 12, 1946).

A Baltimore undertaker embalmed bodies at his business office, but held funeral services (at no extra charge) at his own home in the residential zoning area, where undertaking establishments were not allowed. The defense relied heavily on an alleged analogy to the permissibility of funerals of family members in private residences. However, the Court held that funeral services in the undertaker's home clearly violated the residential zoning ordinance.

Veterans' Trailer Housing

OREGON.—*Hyland* v. *City of Eugene*, 173 Pacific (2d) 464 (Oregon Supreme Court, October 22, 1946).

On the edge of the City of Eugene an area about 400 by 300 feet, part open ground and part covered with tall fir trees, was dedicated in 1926 as a park for "use of the public forever," and remained unchanged except for occasional use for a pasture and a children's playground and for wartime victory gardens. When the influx of veterans to the University of Oregon at Eugene brought a critical housing shortage, a Federal Lanham Act project was set up to provide 100 trailer houses, and the City contributed the park as a site. Under this arrangement, the City and County leased the park for two years to the Veterans of Foreign Wars, and the latter promised not to permit any permanent injury to the area. Neighboring property owners, however, thought the project unsightly and sought to enjoin its continuance.

Since the park was dedicated to all the public for health, recreation and enjoyment, it was held that the park must remain open to all, and its use must not be changed; and on these grounds a permanent change would be enjoined. However, in view of the balance of equities in this situation—the needs of the veterans, and particularly the hardship of evicting those already settled, were so extreme, and the inconvenience to the adjoining landowners so relatively insignificant—the Court, exercising the traditional discretion and conscience of a court of equity, refused to order the eviction of the veterans because of a temporary diversion of park land to an emergency use. The opinion also contained an interesting review of other emergencies in which parks have been used for temporary emergency purposes.

Non-User of Parkway Established within Street Lines

NORTH CAROLINA.—*Spicer* v. *Goldsboro*, 39 South Eastern (2d) 526 (North Carolina Supreme Court, October 9, 1946).

A strip of land 130 feet wide had been dedicated for a century as Center Street in Goldsboro, N. C., subject to a railroad right of way which was conveyed to the town in 1925. In 1928, one-way streets were laid down and paved for some distance along the outer edges, and the Aldermen by resolution authorized the City Manager to "make a parkway in Center Street," by developing the 400-foot by 60-foot island in between. Grass, shrubbery and trees were planted, and walks and seats were laid out. In 1929, the area was named "Joseph Robinson Park," and referred to again as a park in Center Street. When steps were taken by the Aldermen in 1946 to remove the planting and pave the whole street, the action was challenged on the ground that a public *park* had been established by abandonment of the street formerly dedicated.

The Court first pointed out that streets are often dedicated with reference to future needs, and that non-user by itself need not imply abandonment of the dedication. The Aldermen's resolutions, referring to a parkway and a park in Center Street, were held to have created not a park, but a parkway—

> "a single entire street of which a part is devoted to ordinary purposes of travel and a part to ornamental or recreational purposes."

While admittedly sympathetic over the destruction of a beautiful area, the Court held that the part of the street set off for other uses and beautified was, nevertheless, never abandoned.

In Columbus It's a 76.7% Majority Vote FOR TROLLEY COACHES!

According to a survey by the Columbus Institute of Public Opinion, 76.7 per cent of Columbus' riders who ride more than 10 times a week prefer trolley coaches. Clean, quiet, smooth trolley-coach service is one big reason why 80 per cent of the city ride by public transit.

Here's why public-preferred trolley coaches can do much to reduce traffic congestion in your city:

They increase public-transit riding. Fast and comfortable, trolley coaches offer the kind of service that people actually prefer. Thus, they encourage more people to leave their cars at home and ride by public transit, reducing the number of vehicles on the street and decreasing traffic congestion.

Large passengers-per-hour capacity. One trolley coach can carry 44 seated passengers—the equivalent of 29 average automobile loads. Each transit rider uses seven times less street space than the automobile rider.*

Maneuverability. Loading and unloading at the curb, trolley coaches have a street clearance of 12 feet on either side. They pass stalled vehicles easily and enable all traffic to move swiftly.

Speed. Their proved ability to hold their own in busy traffic lanes speeds the traffic flow, gets people to their destination faster.

To minimize traffic congestion in your city—at low cost to riders, taxpayers, and the city: 1) Co-operate with your transit company by encouraging more widespread use of existing transit facilities. 2) Eliminate curb parking in central business areas. 3) Provide off-street parking areas. 4) Investigate trolley coaches for the backbone of your city's transit system. *Apparatus Dept., General Electric Company, Schenectady 5, N. Y.*

**Based on national average load of 1.75 passengers per automobile.*

See LIFESTREAM OF THE CITY, the movie that promotes transit service. Your G-E representative will arrange for a showing.

Listen to SPOTLIGHT ON AMERICA, the transit industry's national radio program. Mutual Network, Friday, 10 p. m. EST. See your newspaper for local station.

GENERAL ELECTRIC

Traffic Regulation

Tackling Parking through Zoning

A study conducted by the Eno Foundation shows that parking problems can be handled effectively by zoning requirements

By CHARLES S. LE CRAW, JR.
and
WILBUR S. SMITH[1]

ZONING has long been used by government agencies to control land usage and development. It is designed to promote and protect the safety, convenience, health, morals, and general welfare of the community.

Recently the problem of parking facilities has been increasingly attacked through the use of zoning. This method has been employed to some extent for over twenty years, and many interesting experiences have resulted. In order to assemble these experiences and pass them on to other cities, the Eno Foundation conducted a study of existing zoning ordinances in various cities throughout the United States.

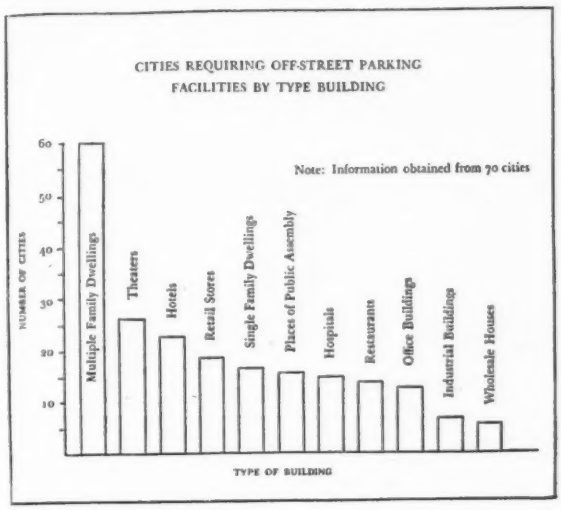
Sources of Information on City Zoning Ordinances for Parking and Loading[2]

In August 1946, information was sought from city engineers and city planning commissions of the 1,060 cities in the United States with 1940 populations of 10,000 or greater. Replies received from cities in all forty-eight states and the District of Columbia were as follows:

Population of Cities	Number	Information Furnished	
		Number	Per Cent
10,000-25,000	649	289	44.5
25,000-50,000	212	146	69
50,000-100,000	107	76	71
Over 100,000	92	75	81.5
Total	1060	586	55.5

Based on replies, 7% of the cities with populations from 10,000 to 25,000; 12% with populations from 25,000 to 50,000; 25% with populations 50,000 to 100,000; and 28% with populations 100,000 and over have zoning ordinances.

Among the seventy cities reporting ordinances which require the provision of off-street parking facilities, eighteen specify them in connection with single-family dwellings.



With information obtained from seventy cities, this chart shows the number of cities that require off-street parking for certain types of buildings.

Many cities, in addition to those with zoning ordinances, have required the provision of off-street parking in connection with dwellings by writing into their traffic regulations a section which prohibits curb parking from 2:00 A. M. to 6:00 A. M., "in order to allow street cleaning and snow removal," among many other good reasons. Urban traffic is at a minimum during these hours, and the majority of automobile users are in their homes. This provision, in effect, requires parking facilities off the street.

Multiple-family dwellings must provide off-street parking spaces in 86% of the cities which have zoning ordinances pertaining to parking. About two-thirds of these ordinances require off-street parking facilities on the basis of one parking space for each dwelling unit. One city requires that one and one-half parking spaces be provided for each dwelling unit, the purpose being to accommodate visitors and occasional families which possess more than one vehicle.

There is a close relation in a community between the zoning requirements and the motor vehicle registration. In the western part of the United States, where motor vehicle registration may be as high as one vehicle per two persons, the majority of the zoning ordinances require one parking space per dwelling unit. In the eastern part of the United States vehicle registration varies from one per four persons to one per six persons, and many zoning ordinances require only one space per two or three dwelling units. There are various requirements, such as the provision of two parking spaces for every three dwelling units, or three parking spaces for every four units, but in almost all cases studied, the requirements were less in the East than in the West.

Hotels, Hospitals, Theaters, Restaurants

One-third of the cities having zoning ordinances relating to parking require that parking facilities be provided in connection with hotels. One New England town of 50,000 population requires that one parking space be provided for each guest room in the hotel. The most common requirement involves the provision of one space per three guest rooms. Many zoning ordinances simply specify "adequate" parking.

Twenty per cent of the cities require hotels to provide off-street loading fa-

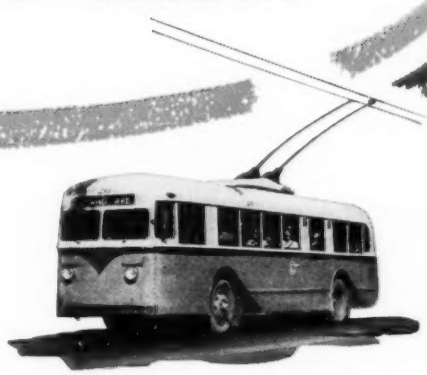
[1] Mr. Le Craw, a graduate in traffic engineering from the Bureau of Highway Traffic of Yale University, is resident traffic engineer of the Eno Foundation and associate editor of *Traffic Engineering* magazine. Mr. Smith is associate director of the Bureau of Highway Traffic of Yale University.

[2] A complete report on this study can be obtained from the Eno Foundation for Highway Traffic Control, Saugatuck, Conn., publishers of *Traffic Quarterly*, from which this article is condensed.

HERE ARE 5 REASONS WHY

TROLLEY COACHES

ARE POPULAR IN DULUTH



1ST THEY'RE GOOD "SALESMEN"

Trolley coaches are popular in Duluth. With an average seating capacity of 39, the system's 32 coaches carried a total of 8,700,000 revenue passengers in 1945.

2ND THEY'RE MONEY MAKERS

Trolley coaches are economical to operate and require very little maintenance. During 1945 they returned a net operating revenue of .2738¢ per seat mile.

3RD THEY'RE LONG LIVED

The original coaches, purchased in 1931, are still in excellent condition. Each coach has traveled approximately 360,000 miles and is still averaging 25,000 miles annually.

4TH THEY'RE HILL CLIMBERS

The territory served is hilly and, carrying capacity loads, trolley coaches easily climb the steepest hills and are not even "winded" when they reach the top.

5TH THEY'RE COLD WEATHER VEHICLES During long periods of sub-zero weather trolley coaches stay right on the job. They are even stored outdoors in temperatures which, at times, reach 25° below zero.

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cilities for trucks. These requirements vary from a minimum of one loading space per 20,000 square feet of floor space used for storage or merchandising to a maximum requirement of one loading space per 5,000 square feet of gross floor area.

Eighteen per cent of the cities with zoning ordinances require hospitals to provide off-street parking space. One-third of these calls for parking space on the basis of one vehicle per three guest rooms. They must furnish off-street loading facilities for trucks on approximately the same basis as hotels.

The idea of requiring theaters to provide parking space to accommodate the vehicles of their patrons is relatively new. Detroit was the first city of the group studied to place such a requirement in its zoning ordinances. This was done in 1940 when the city adopted an ordinance requiring theaters to furnish one off-street parking space for each ten seats in the auditorium of the theater.

The requirements vary widely among the twenty-four cities with such ordinances—from one parking space per four seats to one per twelve seats. Several cities require parking space to be furnished on the basis of floor space. At least two cities require that space provided for parking be equal to the total floor space of the building.

A major portion of the operating period of a theater is normally conducted after the closing time of other business establishments located in the same section of the city. For this reason, it appears sound to allow theaters to take advantage of off-street parking facilities used during the day by other business establishments. Frequently these parking facilities are not in use during the early evening hours when recreation traffic in the city is at its peak, and demand for parking space by theater patrons is great.

Although only 17% of the cities which zone off-street parking require restaurants to furnish such space for patrons, many other cities are studying the possibility of adopting such ordinances.

Wichita, Kans., requires restaurants to provide one parking space for each 100 square feet of floor area devoted to dining purposes. This ordinance, however, does not affect restaurants located in buildings which occupy less than 1,000 square feet of lot area. Los Angeles requires one parking space for each 1,000 square feet of floor space if the total floor area is 7,500 square feet or more.

Several cities require that parking space be equal to the total ground floor area of the restaurant, and at least one city requires the provision of one parking space for each four seats to be used by patrons of the restaurant. Frontage is also used as a basis for off-street requirements for restaurants.

Places of Public Assembly

About one-fourth of the cities with ordinances require that parking facilities be provided in connection with such places of public assembly as churches, auditoriums, bowling alleys, stadiums, and dance halls. Several cities require parking for church-goers, but many exempt them because parking demands for other purposes are usually at a minimum when churches are in session.

Bridgeport, Conn., has placed parking requirements on two special types of facilities. All bowling alleys are required to furnish off-street parking facilities on the basis of one and one-half spaces for each alley used for bowling. Dance halls are required to furnish parking facilities in the amount of three-fourths space for each 56 square feet of dance floor.

Retail Stores

Fourteen cities have zoning ordinances which require retail stores to provide off-street parking facilities for their customers. Three cities require one parking space per 200 square feet of floor area. Two require parking space equal in area to the ground floor area.

Retail stores head the list of all establishments in requirements by ordinances for off-street loading facilities. Thirty per cent of all cities which have zoning ordinances require retail stores to furnish adequate facilities for off-street loading and unloading of merchandise.

Office Buildings

Fifteen cities require office buildings to provide off-street parking for employes and visitors. Ten base their requirements on floor space, the ordinances varying from a requirement of one space per 200 square feet of floor space, which one midwestern city and one southern city have adopted, to a smaller requirement of one parking space per 1,000 square feet of floor area. Los Angeles has adopted the latter requirement for buildings which have a total floor area of 7,500 square feet or more. As in the case of retail stores, several cities have ordinances that require each case to be judged individually.

It is interesting to note that none of the cities studied has ordinances which require off-street parking on the basis of the number of persons regularly employed in the building. Employes make up a definite part of the parking problem, and any plan to alleviate the parking problem must take these persons into consideration if the plan is to be successful.

Industrial establishments and wholesale business houses do not generally create as great a demand for parking space as do retail stores and theaters, which depend primarily upon a steady turnover of customers. Buildings devoted to industry and wholesale trade receive less attention when the problem of providing off-street parking facilities arises.

It is apparent from this study that the parking problem can be effectively tackled through zoning requirements. Sufficient experience has been gained to show that the requirement of off-street facilities by zoning provides a uniform, impartial, and effective means of improving terminal facilities in cities. It is believed that the advantages of zoning for parking will ultimately be recognized by all cities and that more and more of them will enact zoning ordinances which will assure adequate provision of off-street parking facilities to serve traffic loads generated by new businesses.

Better Streets Ease Traffic Congestion

MANY communities already have made important progress in the handling of heavy downtown traffic, but most cities have done relatively little to meet the problem, with the result that traffic conditions have become increasingly worse.

Several solutions can be considered by the individual community. It may be possible to divert an important share of the traffic now crowding downtown streets by skillful use of elevated or depressed thoroughfares. Existing streets then will be better able to handle the remaining load. Provision for by-pass routes and widening of through streets also will help alleviate traffic congestion in some cities.

Congestion in many of the larger cities has become so great that customers from outlying regions are becoming hesitant in making the trip to downtown shopping areas, and property values in business districts are being depressed unnecessarily.

Municipal funds, augmented by the $125,000,000 annual federal appropriation for construction and improvement of urban thoroughfares, should be adequate to remove many of the traffic bottlenecks during the next few years if the need for prompt action is recognized.

CLAUDE C. BLAIR, ***President***
Paving Brick Institute
Washington, D. C.

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WHEN IT COMES TO CONTROLLING PARKING YOU CAN DO IT BETTER WITH DUALS

Needed: Better Enabling Laws On Parking Facilities

By DAVID R. LEVIN
Head, Special Administrative Studies Unit
Division of Financial and Administrative Research
Public Roads Administration

IN spite of widespread interest in the parking problem throughout the United States in recent years, there have been no bold measures directed toward alleviating the condition. It is becoming apparent that preachment alone will not solve urban parking difficulties; more is required than the counting and recounting of potential parkers and present parking accommodations, the apprehension of illegal parkers, and the installation of parking meters. Parking facilities, apparently a basic need in our motorized cities, are still inadequate in capacity, expensive in user cost, and inconvenient in location.

One of the principal barriers to betterment of the parking situation has been the inadequacy of the legal and administrative machinery provided to do the job. The enactment of a comprehensive, modernized, general enabling statute in many states could be an important factor in the solution to the parking problem.

A brief review of existing administrative authority concerning the provision of automobile parking facilities reveals that in most states the legislative grant of administrative power is not coextensive with parking problem areas. In the last two decades the motor vehicle has fundamentally altered city and rural living, industry, agriculture, recreation, education, and countless other activities. Today all states, cities, counties and other units, both large and small, have parking problems—the large ones have problems with many ramifications, the small ones have difficulties easier of solution, but everywhere the parking problem persists.

Accordingly, in light of the present needs of a motorized nation, there is little justification for restricting the authority to establish or foster the provision of parking facilities. Legislation ought to grant such authority broadly to designated administrative agencies of the state, cities, counties, towns, villages, and other local units, in a single enabling act. Desirable sanction would also make provision for the cooperation of any of these units with each other or with any federal, state, or local agency.

It may be difficult to determine what particular administrative agency at each level of government should be vested with authority to deal effectively with the parking problem. The smaller and the medium-sized urban areas will probably find it expedient to create parking facility divisions in existing street or highway or public works departments. The larger cities will probably seek to establish independent automobile parking agencies.

Because of the variety of public fiscal practices and the financial complexities of different types of parking facilities, general state enabling authority ought to be broadly conceived. The respective legislative bodies of the counties, cities, towns and villages should be authorized to finance the planning, the acquistion of property for construction, and the alteration, enlargement, maintenance, and operation of parking facilities by any one or a combination of methods.

Land Acquisition

One of the most troublesome obstacles to the provision of off-street parking facilities involves the acquisition of the necessary lands and property, particularly in cities.

Relatively few statutory provisions relate to the construction of parking facilities. Desirable legislative provisions relative to construction would authorize the respective governmental units to construct or cause to be constructed public off-street automobile parking facilities, including buildings, structures, equipment, entrances, exits, fencing, and all other accessories necessary or desirable for the safety and convenience of motorists.

Whatever the governmental unit involved, it ought to possess sufficient authority to maintain and operate parking facilities efficiently and in the public interest. Leasing by competitive bidding to any individual, firm, or corporation upon such terms and conditions as the public interest may warrant should be sanctioned.

At the earliest possible moment all existing statutes relating to parking facilities should be placed under a legislative microscope by all states. Mere tinkering with the legal and administrative machinery will no longer do. Some statutes need to be discarded entirely and better ones substituted.

From a speech before the Committee on Parking, Highway Research Board, Washington, D. C., December 5, 1946.

Street Cars Replaced by Trolley Coaches

CONVERSION from street car lines to trolley coach operation is scheduled for Des Moines, Iowa, and Detroit, Mich.

To improve and modernize transit service in Des Moines, the four remaining street car lines and two motor bus routes will be converted to trolley coach operation. Plans announced by the management of the Des Moines Railway Company, now operating sixty-seven trolley coaches over 45-52 round-trip miles, will more than double trolley coach service by the end of 1949.

Eighty additional trolley coaches are to be purchased, and orders for thirty-one have already been placed for immediate delivery. Orders for another eighteen have been placed for delivery late in 1947. When the entire changeover is completed, there will be 147 speedy, rubber-tired electrics in operation over 118.36 round-trip miles.

Nearly all Detroit street car lines will be converted to trolley coach and bus operation within the next few years, Richard A. Sullivan, general manager of the Detroit Department of Street Railways, has announced. It is estimated that between 200 and 300 coaches will be purchased at a cost of more than $3,500,000 to replace the present street cars. The company now operates 908 street cars and all except one line will be replaced by new vehicles. Gasoline engine buses will also be purchased as a part of the modernization plan.

Meanwhile, an order for the first 200 of the planned 435 electric trackless trolley coaches for Brooklyn's surface lines has been placed by the New York Board of Transportation with the St. Louis Car Company of St. Louis, Mo. Delivery of the vehicles, which will cost $16.724 each, will begin early in 1948.

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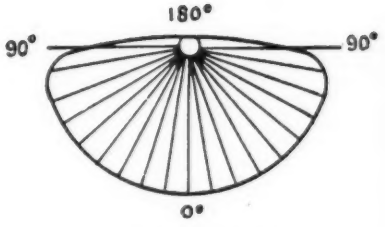
HOLOPHANE REFRACTORS assure Proper Light Distribution

The importance of proper light distribution for traffic illumination is stressed in the newest code, "Recommended Practice of Street and Highway Lighting," issued by the Illuminating Engineering Society. Five "ideal" distribution types are recommended to meet street and highway lighting needs. Holophane Refractors meet each of these exacting specifications.

TYPE IV DISTRIBUTION is for luminaire mounting at or near the side of wide streets. It has a lateral width of approximately 90 degrees in the cone of maximum candle power. Two beams of light are projected up and down the street. Light that would usually fall outside the area is largely directed to the roadway. *Luminaires equipped with the proper Holophane Refractors accomplish this result.*

Because they provide maximum efficiency and economies in operation and maintenance Holophane Refractors are the essential light controlling element in luminaires produced by leading manufacturers of street lighting equipment.

Be sure to Specify Holophane Refractors.



LATERAL LIGHT PATTERN
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Write for reprints of "Recommended Practice of Street and Highway Lighting" from I.E.S. Transactions. No obligation.

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Outdoor Lighting

Resolution

Whereas, it has been demonstrated that 63% of the traffic fatalities in Trenton occur during the hours of darkness, which have only 33% of the traffic, and

Whereas, the great majority of the night traffic accidents take place along the principal street, and

Whereas, the Citizens' Advisory Board on Safety and Traffic has recommended that the lighting of the thoroughfare streets in Trenton be increased to meet the standards of the Illuminating Engineering Society in order to save lives and prevent accidents at night, and

Whereas, experience in Trenton and other cities has shown that adequate illumination effectively increases traffic safety at night, therefore be it

RESOLVED, that the Director of Parks and Public Property be and he is hereby authorized and directed to increase the lighting along the principal thoroughfare streets to the intensities stated in the Illuminating Engineering Society Recommended Practice of Street and Highway Lighting, 1945. (For the purpose of this resolution the term "principal thoroughfare streets" is defined to include all streets which have more than 150 cars per hour during the maximum night hour.)

GEO. W. RIEKER
DONAL J. CONNOLLY
THOS. F. WALDRON
ANDREW J. DUCH
W. H. GERAGHTY

Trenton Relights

THE above resolution by the Trenton, N. J., Board of City Commissioners was the outcome of a long period of inadequate street lighting. An investigation by a Citizens' Advisory Board on Safety and Traffic proved that this condition caused excessive night traffic accidents

At the beginning of the depression, about sixteen years ago, Trenton had 5,382 lamps in service, with a total output of 16,650,000 lumens. Numerous reductions in lighting were made, until today there are only 4,527 street lamps furnishing 12,275,000 lumens. This represents a 26% decrease in lighting. The 1931 cost was $233,650. The 1946 cost was $159,484, a savings in money of $74,166. Here are the facts and the recommendation that caused the Board of City Commissioners to act:

1. There has been a 26% reduction in street lighting and a 32% reduction in the street lighting appropriations since 1931.

2. In the past ten years the hours of darkness had 33% of the total twenty-four-hour traffic and 63% of the fatal accidents.

3. Fatal night accidents were concentrated along the principal thoroughfares.

4. Eighty-four percent of the persons killed at night on the main streets were pedestrians, and half of these pedestrians were more than sixty years old.

5. Improved lighting at thirty-three intersections in Trenton in 1937 resulted in a 35% reduction in night accidents, and the annual savings in reduced accident losses have been three times the cost of the added lighting.

6. During the first eight months of 1946, day accidents have increased 23% over the average of the past three years while night accidents have gone up 36%.

The recommendation of the Citizens' Advisory Board was that the lighting of the thoroughfare streets be increased to meet the standards of the Illuminating Engineering Society. The purpose was to save lives by preventing accidents at night. It is believed this can be done without exceeding the appropriation for street lights in 1931. An immediate start on the project was urged, the work of which will be performed under the direction of George W. Rieker, director of parks and public property.

Toward Licking "Visibility Zero"

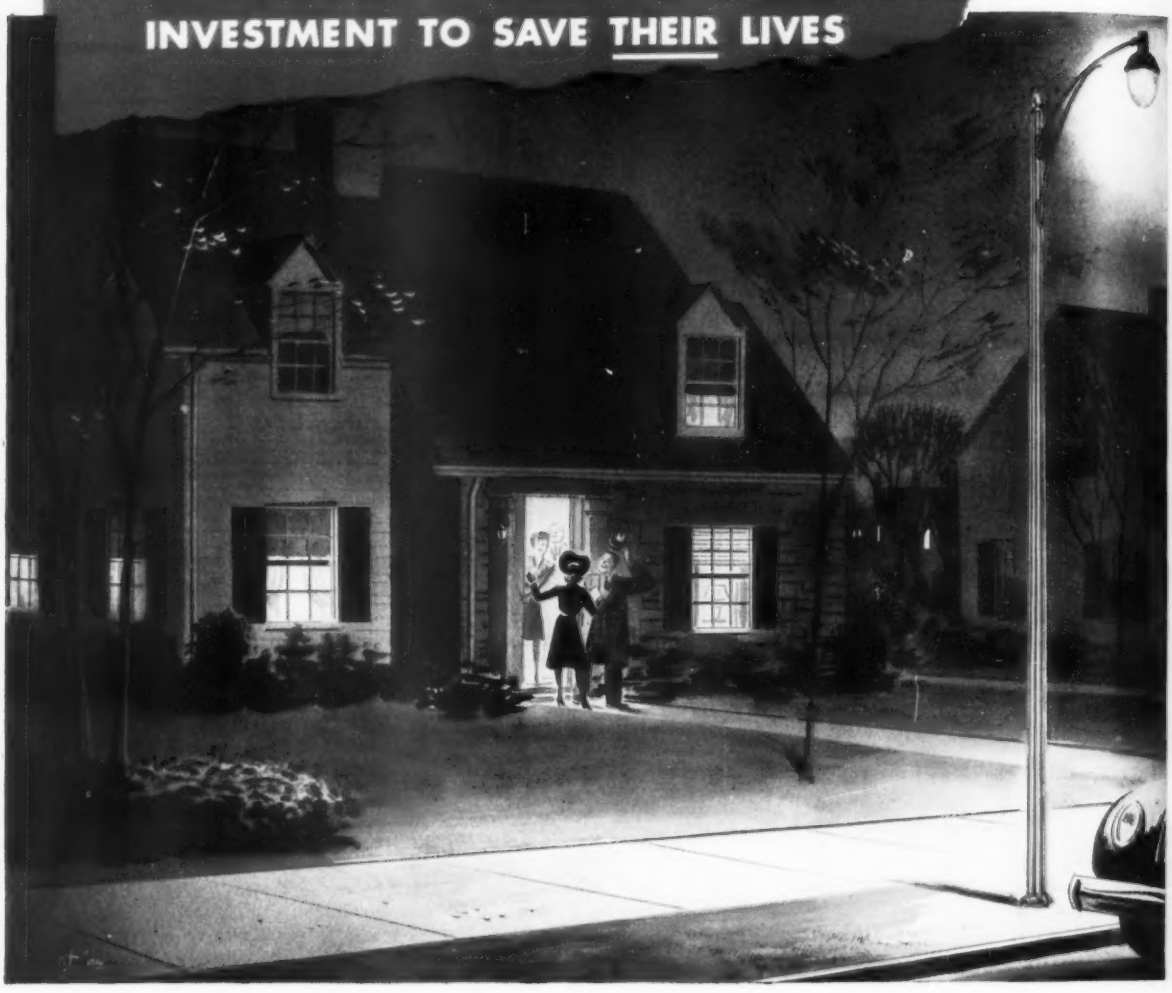
THE VAST increase in air traffic since the war has emphasized the need for safe, dependable landing equipment. The importance of the subject was brought to a head late last year, when the 1946 Robert J. Collier Trophy was awarded to Dr. Luis W. Alvarez for his contributions to the development of the radar Ground Control Approach landing system.

At the Landing Aids Experiment Station at Arcata, Calif., the AAF and Navy BuAer and CAA have been conducting a series of joint tests for all-weather flying which promise speedier and safer operation in soupy weather.

The experiments indicated that the most reliable method for landing aircraft under conditions of low visibility would involve the use of three different landing aids. Those aids include either the Instrument Landing System or the Ground Control Approach as the backbone of the integrated system; a system of high intensity approach and runway lights to aid in establishing visual contact with the runway, and high-pressure fog dispersal equipment to insure visual contact with the runway under heavy fog conditions.

To assist in these visual landings under low ceiling conditions brought

YOU COULDN'T MAKE A BETTER INVESTMENT TO SAVE THEIR LIVES



GREATER safety for pedestrians and motorists — more protection for property—less opportunity for holdups and other hazards—are only some of the reasons behind the growing movement to relight American communities.

To aid this program, Union Metal has developed a new type of steel street lighting standard that meets every requirement of good street lighting practice.

An important feature incorporated into this standard is the 45-degree upsweep bracket that simplifies wiring, provides better distribution of light, looks better.

Available in standardized heights to reach nominal light centers of 20, 25, 30, 35 and 40 feet. When used with fabricated steel transformer bases, the overall height is increased 20 inches. Choice of brackets in 4, 6, or 8 foot lengths with supporting scrolls, or in 10, 12, 15 and 18 foot mast arms with top, side-sway bracing. Two attractive shaft styles—plain round or octaflute.

For engineering details, write The Union Metal Manufacturing Company, Canton 5, Ohio.

1906-1946
40 YEARS OF PROGRESS IN THE DESIGN AND FABRICATION OF STEEL PRODUCTS

UNION METAL

Largest Producers of Street Lighting Standards

about by heavy fog, low overcast, or similar elements, the experimental station recommended use of a system of high-intensity approach and runway lights. The landing runway is lined with lights, in the color sequence designated by AAF, Navy, and CAA standards, of 30,000 candlepower, unfiltered, with five degrees of intensity. The intensity is to be controlled from the tower, so that lights may be dimmed or brightened according to the needs of the pilot or the demands of the weather.

Red "approach" lights of 20,000 candlepower extend from the runway sides to create a funnel-like approach of lights at runway level for pilots to follow after visual contact has been established. The high intensity of both systems has helped to overcome such handicaps to aviation as fog and other hindrances to vision.

From *The Martin Star*, published by The Glenn L. Martin Company, Baltimore, Md.

London's Street Lighting, 1736-1946

By MARGARET N. DOWNIE

THE FIRST attempt at regular street street lighting in London was at the beginning of the 15th century, when it was decreed by Lord Mayor Sir Henry Burton that the occupants of all houses facing on a street should hang out a lantern on all dark nights from All Hallows Eve until Candlemas. Street lighting became an organized communal service in London and passed out of private hands to the Common Council of Ward in 1736. After many vicissitudes it was passed to the Commissioners of Sewers and ultimately to the Vestries of the Local Parishes.

Oil lamps were used exclusively and the light they shed was very feeble. In 1763 a certain Mr. LeFebre issued a pamphlet on the subject, suggesting that a high tower should be built in the center of London, with a powerful lamp inside parabolic reflectors at the top, which would be powerful enough to light the whole city.

Traffic Problems Begin

By the year 1800 the increased facility and comfort of traveling, combined with the sophisticated social life of the time, created the need for some more efficient method of illumination. Landaus, phaetons, barouches, sociables, curricles, gigs, whiskies, briskas, rib chairs, and a host of other more utilitarian vehicles were all in general use by this time, and during the short winter days and foggy autumn nights their owners wanted to use them at any time of the day or night. A pamphlet issued at this time by Count Thivelle commented on the fact that bright lights dazzled the eye without illuminating the surface of the road. He wrote: "The utmost degree of perfection would be attained if the whole pavement and street could be illuminated without our perceiving whence the light proceeds."

The use of coal gas for lighting was first made practicable by William Murdoch, who conducted experiments about 1790, and it was due to his work that one Mr. Winser, in 1807, was able to experiment with gas for street lighting. The wall separating the Mall from Custom's House Gardens was illuminated by a chain of gas lamps in honor of the King's birthday. The experiment was a success, and Westminster Bridge was lighted by gas in 1813, and the whole of the Parish of St. Margaret's followed suit the next year.

Although Sir Humphrey Davy had invented the arc light as early as 1802, street lighting by electricity was impracticable until the development of a dynamo which could be relied upon as a source of current. Arc lights made their appearance in the 80's, and their brilliance caused the gas companies to intensify their research and improve their product by the introduction of pressure gas and the use of a mantle. By 1896 they had achieved the inverted incandescent gas burner.

The turn of the century saw the motor car well established, and its exacting needs have given great impetus to the long search for the ideal method of lighting the streets. An American electrician produced the mercury vapor lamp in 1901. Its peculiarity is that it contains no red rays, most of the light being yellow, with a certain proportion of green and blue. The result is a peacock blue light which alters color values greatly, scarlet objects appearing black. The light imposes less strain on the eyes than ordinary artificial light.

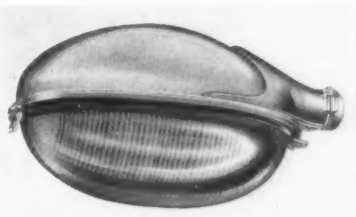
There are twenty-eight Borough Councils in the County of London and they all superintend their own street lighting. Some districts are lighted by gas, other by electricity. Even the old-fashioned lamp-lighter has not been entirely dispensed with, although he is now mechanized to the extent of being able to light the lamp without stopping his bicycle. Some councils purchase and maintain their own equipment, others hire it from the gas or electrical company, which agrees to maintain it, while others hire it from the company but maintain it themselves or enter into an agreement whereby the ownership passes from the company to the council after an agreed number of years.

The Departmental Committee on Street Lighting, in its final report, points out that there is in law no obligation on the local authority to provide street lighting at all. It recommends that "the power to light roads should be confined to larger administrative units" and comments on the need for cooperation and consultation between adjoining authorities in cases where a road is of common interest.

From a thesis awarded distinction in the Royal Institute of British Architects' final examination and published in the August 1946 issue of the Journal of The Royal Institute of British Architects.

Puts More Light On the Street

DESIGNED specifically for mercury vapor lamps, a new Westinghouse enclosed street lighting luminaire directs approximately 50% of the lamp output on the roadway as compared with the 27 to 30% of previous units. Because both reflector and refractor are oval, light from either a 20,000 or a 10,000-lumen mercury luminaire is concentrated efficiently into two main beams on the roadway. Further information may be secured from the Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pa.



The new Westinghouse mercury vapor street-lighting luminaire.

CROUSE-HINDS

50th Anniversary

HALF A CENTURY OF ACHIEVEMENT

1897 Fifty years ago two men each had an idea. Huntington B. Crouse had an idea. He wanted to be a business man. Jesse L. Hinds had an idea. He wanted to manufacture articles for the electrical trade. A mutual friend brought the two men and their ideas together and on January 18, 1897 the Crouse-Hinds Electric Company was born. It manufactured electrical switches, panelboards, switchboards, and the patented Syracuse Changeable Electric Headlight for trolley cars. The headlight was the forerunner of the extensive line of lighting equipment manufactured later.

1903 The partnership was replaced by a corporation — Crouse-Hinds Company.

1906 A newly invented line of electrical conduit outlet bodies with threaded hubs was now manufactured. A new name was needed, so the word "CONDULET" was coined. It was adopted as a trade mark and registered in the United States Patent Office. Condulets were destined to revolutionize electrical conduit installation practice.

1910 Mr. Crouse formulated a firm policy of equal discounts to all distributors and equal prices to other purchasers. Revolutionary in those days, it has since been generally adopted by the electrical industry.

1911 On a 25-acre plot of land the cornerstone of the present plant was laid. Additional acres and buildings have been added since.

1915 Crouse-Hinds made the first of its now extensive line of floodlights.

1922 Crouse-Hinds built the first modern four-way three-section traffic signal.

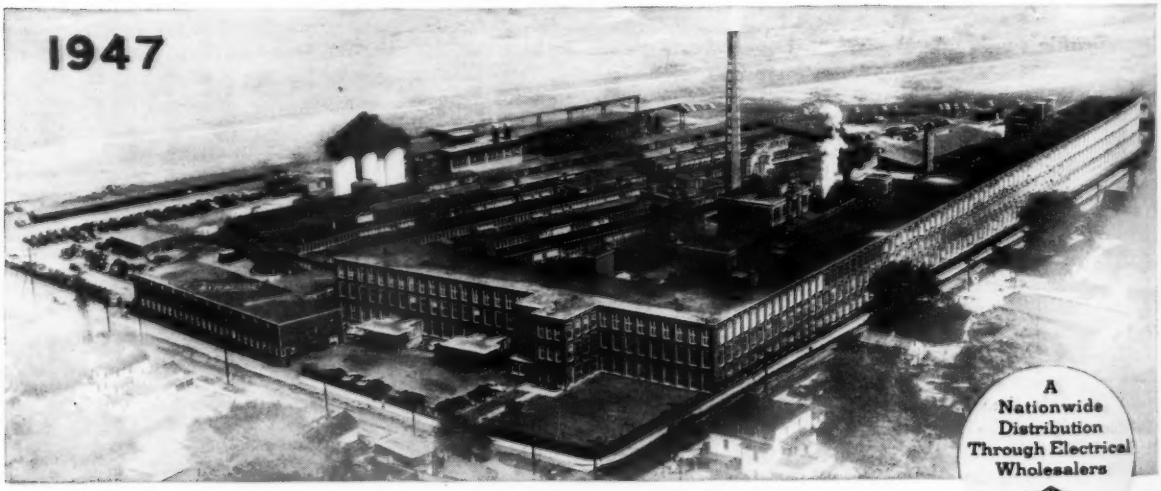
1927 Crouse-Hinds developed equipment especially designed for airport lighting.

1929 Pioneer in sports lighting, Crouse-Hinds installed a complete lighting system in a major college football stadium — at Syracuse University.

1932 Crouse-Hinds issued the first complete catalog of a line of Explosion-Proof Condulets.

1943 Upon the death of Mr. Huntington B. Crouse, Mr. William L. Hinds succeeded him as President of Crouse-Hinds Company.

1947 Now, after fifty years, the Crouse-Hinds Company has the same objectives with which it started — to make a good product better and to deal fairly and honestly with all.



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Death and Darkness

By W. L. CROSS, JR.,
PRESTON S. MILLAR
and
R E. SIMPSON*

DESPITE the definite value of street and highway lighting, its appraisal is difficult. While improved lighting makes for better night visibility, at the same time it attracts more traffic. If traffic and speed are reduced there are fewer accidents; if visibility is diminished, however, other things being equal, there are more accidents.

One method of determining the handicap of poor visibility is to compare traffic accident records in those hours of morning and evening which in the summer occur in daylight and in the winter occur in darkness. It has been established that such factors as slippery streets in winter do not enter appreciably into such comparisons. The one big factor is the better visibility of twilight in summer contrasted with the poorer visibility of artificial night lighting in winter.

Extending nationally the statistics of the State of Connecticut and of New York City for the dawn and twilight hours of summer, versus those for the same hours of winter, would show more winter fatalities by 8,400, on the basis of 120,000,000 population, and 10,865 on the basis of registered motor vehicles.

It is our belief, based on pre-war experience, that better lighting, making for better visibility, promoted safety in the use of streets and highways, and that increased fatalities and damage were the ill effects resulting from curtailment of street lighting.

New York Accident Ratio

In New York City in 1941, before the dimout, the ratio of night-to-day fatal accidents was 1.33. In the 1942 dimout period it was 2.15. Prorating the data for a ten-month period to an annual basis, and applying this ratio to the day fatal accidents before dimout, indicates that 336 fatal night accidents would have been expected in 1942 if conditions had remained as in 1941. Actually there were 544 night fatal accidents, leaving 208 of these to be attributed to the wartime dimout conditions. This figure of 208 fatal accidents attributable to the dimout has application to a population of about 7,500,000. The total dimmed area had a population of perhaps 28,000,000. If the ratio of 208 fatal accidents to a population of 7,500,000 were to be applied to this total population of 28,000,000, there would result an estimate of about 775 fatal accidents per annum that were attributable to the dimout.

The National Safety Council's compilation of accident data, 1943 edition, summarizes traffic deaths for the calendar years 1942 and 1941, respectively. In the states not bordering on the sea or not having coastal regions in the dimout areas, the record is influenced largely by the populous Middle West, where gasoline rationing for 1942 was not so severe as in the Northeast. For these non-dimout states, 1942 traffic day and nights deaths totaled 68% of the 1941 traffic deaths. For the dimout states, among which were the populous and gas-rationed northeastern states, the 1942 traffic deaths were 71% of those of 1941. If, making no allowance for excess traffic curtailment, the 0.68 ratio of the inland cities had prevailed, the number of traffic deaths in these coastal states would have been expected to be about six hundred fewer than actually was the case in 1942. In view, however, of the added gasoline curtailment in the northeastern states, this very loose estimate of dimout traffic deaths is too small. Had there been the same allotment of gasoline as in the Middle West the probability is that the 1942 record in the coastal states would have been materially worse.

During the period February 1, 1945 to May 8, 1945, as a fuel-saving measure, show-window lighting and electric signs were extinguished, more or less, in various cities of the country. Studies of accident statistics from thirty larger cities showed that the death of one hundred and nineteen persons during the brownout period could be attributed to the reduction in lighting of streets due to the extinction of such private lighting. This indicated a night fatality rate increase of 21.5%, attributed to the brownout. A notable feature of the brownout record is that in streets amply lighted by the public lighting systems, the reduction of show-window and sign lighting had no effect upon the accident rate.

Perhaps 10,000 lives are sacrificed and an immense loss through injury and damage is sustained annually in traffic accidents on poorly lighted streets and highways. If increased expenditures for illumination could be provided generally, as have been provided in certain cases in recent years, these sacrifices would be avoided. To redeem night traffic from this disability, and to save the public from the costs and horrors of traffic accidents, is a project worthy of the best efforts of all concerned. Any cost that might possibly be involved in bringing street and highway night visibility to a level that will reduce the traffic accident rate to that of daytime will be a cost well and economically incurred.

* Respectively: Connecticut State Motor Vehicles Department, Hartford, Conn.; Electrical Testing Laboratories, Inc., New York City; and consulting Engineer, Hartford, Conn.

From "The Vital Importance of Fixed Lighting of Public Ways," *Illuminating Engineering*, September 1946, and discussed at New York Illuminating Engineering Society section meeting, January 16, 1947.

I.T.E. Lighting Committee Favors I.E.S. Code

THE MOST noteworthy contribution to the art of street and highway lighting during the past year was the adoption and publication by the Illuminating Engineering Society of *Recommended Practice of Street and Highway Lighting*, 1945, prepared by its Committee on Street and Highway Lighting. This report was over two years in the making and supersedes *Recommended Practice of Street and Highway Lighting*, 1940.

A number of members of the Institute of Traffic Engineers actively participated in the preparation of this report, while others sent in comments which were forwarded to the sub-committee in charge of writing the drafts. The final draft, as adopted and published, has been sent out by the Society to various organizations, including the Institute, for their endorsement for the adoption of *Recommended Practice of Street and Highway Lighting*, 1945, by the American Standards Association as standard.

The Street and Highway Lighting Committee of the Institute of Traffic Engineers met in October at Columbus, Ohio, with seven members present, and discussed at length the desirability of making this endorsement. The following recommendation was finally adopted by a five-to-two vote of the committee, with a subsequent unanimous agreement that the views of the majority be actively supported and furthered by the committee as a whole:

"RESOLVED, That *Recommended Practice of Street and Highway Lighting*, 1945, as developed by the Illuminating Engineering Society, be endorsed by the Institute of Traffic Engineers for adoption as an American Standard, and

"RESOLVED FURTHER, That 'Recommmended Practice of Street and Highway Lighting, 1945', be approved by the Institute of Traffic Engineers as the current authorization guide in the installation and modernization of street and highway lighting."

INTERNATIONAL

Announcing—NEW MODELS INTERNATIONAL TRUCKS

Truck owners will operate them—drivers will drive them—*with greater pride than ever before.*

They're the new KB Models of International Trucks—outstanding products of advanced design, engineering and research—newly styled with flowing lines sharply accented by gleaming chrome, and with 95 features and improvements variously incorporated throughout 15 basic models.

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In the *complete* International Line there's the right truck for every hauling job. And back of every truck is *specialized* International Service—supplied by the nation's largest company-owned truck-service organization, International Branches—and by International Dealers everywhere.

Yes, the new KB Internationals will be owned and driven with pride—with pride and profit—because these rugged trucks perform with unbeatable economy.

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For details of the 95 FEATURES AND IMPROVEMENTS in various models of the new KB Internationals, see your International Branch or Dealer.

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Tune in James Melton on "Harvest of Stars" every Sunday! NBC Network. See newspapers for time and station.

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INTERNATIONAL *Trucks*

Problems of Municipal Finance

Should Bonds Be Sold Now to Finance Future Construction?

IN the case of cities contemplating public works projects for which bonds must be issued, but which are not likely to be built for several months, would you advise marketing the bonds now or do you believe that terms substantially as good can probably be secured six months or a year hence?

This question, addressed by THE AMERICAN CITY to Sanders Shanks, Jr., president and editor of *The Bond Buyer*, has brought the following response under date of January 15:

"Generally speaking, it is the writer's opinion that fiscal officers of states and municipalites are not wise to attempt to speculate on what the bond market will do over a long term. Viewing the situation as of today and looking ahead six months or a year, we do not anticipate any very substantial change in the level of municipal bond prices and, even though there should be some further decline, it is entirely possible that there might also be a change in the level of public works construction costs which would offset any gain derived from the sale of bonds in advance of the time when the funds were actually needed.

"During the year 1946, the municipal bond market suffered a very substantial decline which, it is generally agreed, discounted an anticipated substantial increase in the volume of state and municipal borrowing and a substantial cut in individual income tax rates. The income tax rate cut has not actually materialized, but apparently will be approved by Congress shortly. As to the anticipated increase in volume of state and municipal financing, it does not appear now as though this volume will materialize as rapidly as was anticipated last year. Even in the case of the two large soldiers' bonus issues approved in Illinois and Michigan, the actual sale of bonds by those two states apparently will not be scheduled as soon as was contemplated at the time the issues were voted.

"During the month of December, and again in January, we had a number of relatively large issues of state and municipal bonds coming on the market. These issues were enthusiastically received and moved almost immediately into the hands of investors.

"The municipal bond market performance over the past six weeks encourages the belief that this is an ample potential demand for all the state and municipal financing that is in sight during the coming months."

What Can Local Governments Do About Inflation?

"HOW Can States and Cities Meet Inflation?", topic of a press seminar recently sponsored by the Public Administration Clearing House in Chicago, brought forth a number of specific suggestions from the experts who were assembled to provide background material about the effects of spiraling prices on city and state governmental operations.

One of the major steps recommended was that the taxpayers and voters be kept fully informed and given facts and figures on the reasons for municipal cost increases. Whenever possible, specific cases should be cited —perhaps of public employes who have not received substantial salary adjustments to meet the costs of living for themselves and their families. The press, radio, and otner methods should be used in explaining the situation to the public.

Scheduling Capital Improvements

Also essential is the careful scrutinizing and scheduling of future capital improvements, many of which are now being deferred because of skyrocketing construction costs. This forced postponement of all but the most essential projects may even be a blessing in disguise for those municipalities which, up to this time, have done little in the way of long-range programming and planning. They are being given a breathing spell to analyze their position, to estimate future trends in population and employment, and to prepare a master plan before committing themselves to capital projects which they may find difficult to finance.

Especially important during an inflationary period is the integration of a capital budget procedure with the master plan. The scheduling and allocating of project costs will aid in preventing a municipality from depleting its resources on one or two big projects to the detriment of other services and improvements.

A number of other measures were recommended at the seminar as aids to meeting problems aggravated by the inflation. These included increasing the efficiency of existing administration, especially in tax-collection techniques, assessing for higher property values, seeking new sources of revenue, and tightening up budgeting and financial control procedures.

The Municipal Bond Market

Some sales of new issues reported in recent issues of *The Bond Buyer*:

Amount	Borrower and Purpose	Rate (%)	Term (Years)	Basis (%)
$ 18,000	St. Clair, Mich., Sewer	1	4-10	1.223
12,000	Medina, Ohio, Garbage Collection and Disposal	1.25	1.83 Avg.	1.00
232,000	Westborough, Mass., Water	1 25	7.83 Avg.	1.229
165,000	Brookings, S. D., Airport	1.10	6.33 Avg.	1.321
430,000	Grand Junction, Colo., Water, Series B	1.50		
2,560,000	Richmond, Va., Public Improvement	1.50	1-20	1.397
29,646	East Liverpool, Ohio, Special Assessment	1.25	3.83 Avg.	1.21
1,440,000	East Bay Municipal Utility Dist., Cal., Second Mokelumne Aqueduct	1.50	8-10 Ser.	1.7261
146,000	Kingsport, Tenn., Municipal Land Acquisition	1.75	14.33 Avg.	1.791
25,000	Durango, Colo., Airport	2	15	1.938
30,000	Roanoke Rapids, N. C., Cemetery	2	13 Avg.	2.046
150,000	Ortonville, Minn., Hospital	2.10	12 Avg.	2.095
36,000	St. Martin Parish, La., Public Improvement	2.25	19-20 Ser.	2.436
35,000	Snyder, Tex., Water Works, Sanitary System, Streets	2.50	5.83 Avg.	2.696
100,000	Fort Dodge, Iowa, Sewer Revenue	2.50	1-20 Ser.	2.478
80,000	Edinburg, Tex., Water Revenue	2.75	16.5 Avg.	2.733
25,000	Havana, Fla., Street	3	5.16 Avg.	2.728

Ann Arbor to Receive $125,000 Annually from University of Michigan

A contract under which the University of Michigan is to help compensate Ann Arbor for the tax-exemption of more than 50% of the property in the city has been entered into after several months of negotiations.

The agreement, as reported by the American Muncipal Association, provides for payments by the University of $125.000 annually in lieu of taxes. Included in this amount are a $97.600 annual payment by the University to permit expansion of the city water or sewerage system and $20,500 to pay salaries of seven policemen now serving in the university area.

University officials also agree to pay

ROUGH ON ICE

The answer to your ice control problems—THE HIGHWAY MODEL "E"

Designed for fast positive ice control with sand or cinders, the Highway Model "E" Spreader is the unit that highway departments have long been seeking. The distributor disc is mounted low enough to the highway to cast material *low,* eliminating interference with on-coming traffic. Material is cast ahead of rear wheels of truck providing traction for truck and safety at any operating speed. Spread may be controlled to cover full width of either a 2 or 4-lane highway in one operation.

The Highway Model "E" not only saves time and material, but also saves labor. It is not necessary for an additional man to be out in the weather. Thickness and width of spread are easily controlled from the driver's seat. Large hopper can be filled in advance with material and the unit held in readiness for sudden emergencies. Made in four lengths to mount on any truck chassis. Driven by power take-off from truck transmission. Drive gears operate in oil and are protected from dust and weather.

This new spreader is a year-round unit. In addition to ice control, it can be used for dust control with calcium chloride in summer, and for applying a seal coat on oil. By removing the distributor disc, it is ideal for hauling and spreading chips and small rock on road shoulders, etc.

WRITE FOR DETAILS

Sold and distributed by leading Construction Machinery Dealers throughout the United States, Canada, and Foreign Countries.

HIGHWAY EQUIPMENT COMPANY, INC., 629 D AVENUE N. W., CEDAR RAPIDS, IOWA

MANUFACTURERS OF THE WORLD'S MOST COMPLETE LINE OF SPREADERS

the city $5,000 on capital investments for utilities for each new University building erected. Further, the university expects eventually to contribute about $50,000 a year toward the city's fire and police budgets, though final action on this proposal has not yet been taken.

Most of the tax-exempt real estate in Ann Arbor belongs to the University. At the same time, officials estimated that at least half of the $400,000 annual Ann Arbor tax collections is spent for services benefiting the University. State legislation provides for college contributions in lieu of taxes to municipalities, but does not make them mandatory.

An earlier plan devised by Ann Arbor officials proposed doubling water and sewer charges to the university. Such increases would have yielded the city some $80,000 a year from University funds. The plan was discarded in favor of the current in-lieu payment schedule however, and the University continues to pay the same city service rates as other consumers.

In a few other cities, The American Municipal Associations points out, certain public institutions help pay municipal costs. The Rutgers University stadium at New Brunswick, for example, was held taxable property by a New Jersey court. Buildings of the University of Illinois are assessed and taxed by the city of Champaign. In Washington, D. C., the federal government pays about 11% of municipal costs.

Suggestions for Retaining Community-Created Property Values

URGING that cities gradually increase taxes on land while decreasing taxes on improvements, Gilbert M. Tucker, in his recently published book, *The Self-Supporting City*,* presents several ideas for reforms that cities might undertake to ensure that they will retain property values and benefits resulting from community growth and expenditures.

The way in which title to delinquent holdings can be taken should be simplified, Mr. Tucker believes. Then, instead of trying to force profitless or impossible sales, the city should hold such properties, leasing them for ground rent, with all past or future improvements exempt. The author declares:

"The best way to fix rent on holdings of uncertain value would be by auction of long-term leases, taking bids in terms of annual rent, readjusted at intervals according to changing conditions. Titles would be kept clean, income restored to the city, demoralization of realty values ended, and many a holder now wiped out would retain and improve his property. . . .

"It is possible that such procedure might place those who continue to pay taxes at a disadvantage, encouraging non-payment. To obviate this, and to expedite the collection of ground rent instead of taxes, permit any owner so electing to deed his property to the city for a nominal payment, retaining tenure and therefore paying only full ground rent. Then he can build the home so long desired, incurring no added levy, and city revenues will be assured."

Benefits of Excess Condemnation

"Under existing laws cities seldom have the right to buy, hold or lease realty for purposes other than actual public use. The rights of the city should be broadened to permit such undertakings. There is sometimes provision for what is called excess condemnation, giving city or state the right to acquire land beyond that directly needed, in order that it may reap the return from public improvements. Such legislation, however, is often obscure and forgotten, and excess condemnation is exercised far less often than it should be.

"We can learn from European experience, where cities are often far more progressive than American municipalities. The opening of the famous Avenue de l'Opera in Paris cost the city some $11,000,000; but, by the sale of benefited land acquired by excess condemnation, it realized a profit of almost six times the cost of the new street—another instance of the increase in land values by public improvements. . . .

"There is vociferous objection to proposed improvements which leave property owners with worthless scraps of land and sometimes they recover in damages more than would have been the cost of purchasing the entire parcel under excess condemnation."

Recreation and Health Departments Entitled to Surplus Property at Discount

ORGANIZED recreational departments, including children's day nurseries and parks and playgrounds, can buy government-owned surplus property at the same discount and priority level as institutions organized for carrying on public health activities, according to the War Assets Administration. Such buyers are entitled to a 40% discount on the normal purchase price.

New Day Dawning for Pittsburgh

TIRED of its dirt and congestion, Pittsburgh has a new generation in power, bent upon rebuilding the city." Significant facts to back up this statement are presented in the February issue of *Fortune*.

"For the first time," this 12-page article points out, "the industrial elite has moved in to initiate and push a broad-scale civic improvement program. . . . This may be the last chance, it thinks, to reverse the course of urban decay and industrial decline—and, considering the chafing unrest of urban industrial problems everywhere, it may be none too soon."

Spearhead of the new movement is the "Mellon empire," whose new generation, says *Fortune*, "is not only bent upon an aggressive capitalistic offensive to establish new industries, but is committed to bending a large part of its energies to civic rebuilding on a new scale."

Richard K. Mellon is now serving as president of the Pittsburgh Regional Planning Association and was one of the prime movers in forming the Allegheny Conference on Community Development "that has set out to remake the area," under the chairmanship of Dr. Robert E. Doherty, head of the Carnegie Institute of Technology. Other potent members of the business community listed as active in this organization or in the recently formed Urban Redevelopment Authority, of which Mayor David L. Lawrence is chairman, include U. S. Steel's Benjamin F. Fairless, Westinghouse's Board Chairman Andrew Wells Robertson, Aluminum Co.'s Roy A. Hunt, H. J. Heinz Co.'s H. J. Heinz II, Banker Arthur E. Braun, Kaufmann Department Stores' Edgar J. Kaufmann, Carnegie-Illinois Steel's J. Lester Perry, and Mellon-man Arthur B. Van Buskirk.

Problems to which these civic bodies are giving special attention include highways, flood control, river pollution, traffic, industrial development, housing, labor and other questions affecting Pittsburgh's future relations.

"Pittsburgh," concludes *Fortune*, "is in the position of having to juggle all its problems at once, making its city more livable to attract new industry to aid in remaking the city and reduce its heavy industrial tensions. It will take more than the usual chamber-of-commerce effort. It will take all the energy of the new generation. The determination of the younger Mellons to follow in the industry-building footsteps of their fathers is indication that this energy will be forthcoming."

* See page 131 of this issue.

MACK SERVICE follows through!

Chief Sorenson's experience is typical. Mack service means even more than supplying the world's finest-built fire apparatus. You also benefit by the follow-through afforded by the skilled personnel of 67 Mack factory branches. That's why you're sure of unequalled fire apparatus performance when you get Macks.

CITY OF SUPERIOR
WISCONSIN
UNDER COUNCIL-MANAGER GOVERNMENT
F. R. BUECHNER, CITY MANAGER

FIRE DEPARTMENT
OLAF SORENSON, CHIEF

October 4th, 1946.

Mr. Pierce J. Fleming, Dist. Mgr.
Mack Manufacturing Corporation
St. Paul, Minnesota.

Dear Mr. Fleming:

I could not feel otherwise than to write you a word of our deep appreciation for the services rendered this department in advising us on our Mack equipment from both Mr. Robt. Van Dusen and your Mr. Kafski. Mr. Van Dusen, who willingly stayed over to be sure that all of our operators had a full knowledge of the pumping and handling of the Mack, is especially to be commended.

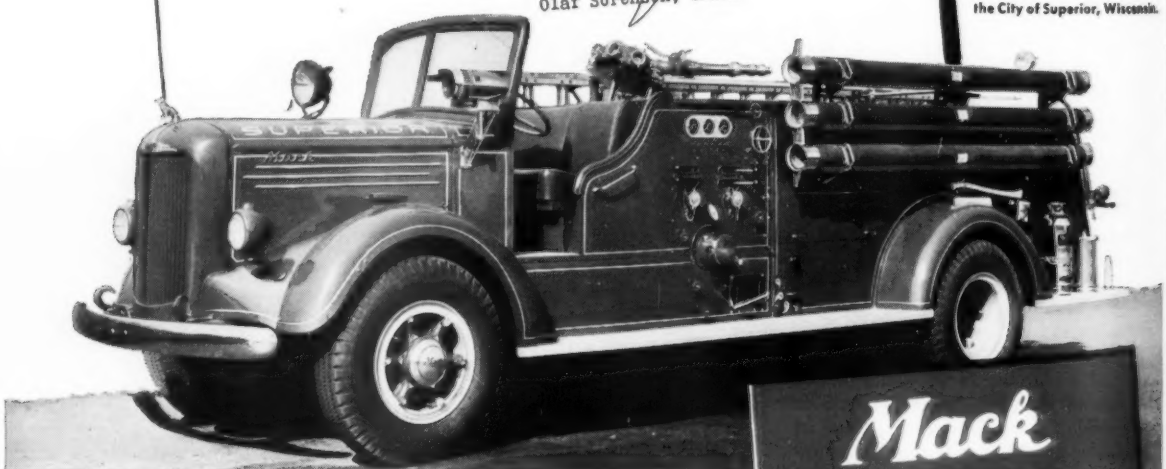
We find that advice is always plentiful and cheap, but it usually comes from unreliable sources and to have two crackerjack men from Mack to give us first hand knowledge is a service invaluable to us. A good many things were talked over between the operators, my mechanics and your men and I feel they are on very safe ground in handling our Macks.

Thanks sincerely,

Olaf Sorenson

Olaf Sorenson, Chief

Mack Type 95, 1000-gallon Pumper recently delivered to the City of Superior, Wisconsin.



MACK MANUFACTURING CORPORATION
Fire Engine Dept., Empire State Building, New York 1, N. Y.

Mack
FIRE APPARATUS

Municipal LAW NOTES and DECISIONS

Prepared by
NATIONAL INSTITUTE
OF
MUNICIPAL LAW OFFICERS
Washington, D. C.

CHAS. S. RHYNE
Executive Director

Assessments—Addition of Omitted Property

On certiorari to review and declare illegal and erroneous the assessment of certain of petitioner's property upon the 1945 assessment roll of town, held that a town board has authority to add to assessment roll omitted property without limitations as to the number of preceding years, and that town assessors' knowledge of existence of property, during each of the years the property was omitted from assessment rolls, did not preclude such property being considered "omitted property" and added to assessment roll for a later year. *People* v. *Taylor*, 64 N. Y. S. (2d) 326 (N. Y. Sup. Ct., Westchester Co., July 2, 1946).

Assessments—Addition to Roll after Expiration of Time for Review of

Where a party aggrieved by a tax assessment has absolute right to review under article of Tax Law providing for presentation of petition for review within thirty days after final completion and filing of assessment roll, a town board's action, in sustaining assessor's petition to add property to current tax roll for preceding years during which it had been omitted, was held illegal where the town board of Harrison took such action long after property owner's thirty-day period for filing petition for review of assessment had expired, and therefore omitted taxes, though a proper subject of assessment, were not properly added to the current roll, and were required to await timely addition. *New York Telephone Co.* v. *Taylor*, 64 N. Y. S. (2d) 323 (N. Y. Sup. Ct., Westchester Co., Dec. 20, 1944).

Budget—Failure to Object by the Taxpayer

In action to quiet title to certain lands claimed by defendants by virtue of tax deed, held that where taxpayer failed to exercise statutory right to appear and object during preparation of the San Diego high-school district budget, taxpayer's failure to object to neglect of district to consider certain items in making up budget, which objections were made thirteen years after budget was made up, was waived. *Griffith Co.* v. *Belchez*, 172 Pac. (2d) 511 (Cal. App., Sept. 18, 1946).

Building Permits—Failure of Ordinance to Specify Standards—Definitions of "Block"

In action for injuction against interference with plaintiff's construction of garage building, held that a city ordinance requiring building permits, without prescribing any standards with which landowners, seeking such permits, must comply or by which discretion of body granting or refusing permits was controlled, was arbitrary and void, and definition of word "block" in ordinance prohibiting construction of any building other than residence in a "block" wherein buildings are used exclusively for residential purposes, embraced both sides of street between intersecting street. *Bowman* v. *Board of Councilmen of City of Elizabethtown*, 196 S. W. (2d) 730 (Ky. App., Oct. 4, 1946).

Civil Service—Veteran's Preference—Promotional Lists

In mandamus against Muncipal Service Commission of City of New York for order pursuant to Civil Practice Act, to compel reinstatement of petitioners at head of certain civil service promotional lists, held that a veteran's preference in appointment or promotion in a civil service position is in the nature of a debt of gratitude by the people of the state to persons who loyally serve their country in time of war and as such is valid under the Fourteenth Amendment. *Bateman et al.* v. *Marsh et al.*, 64 N. Y. S. (2d) 678 (N. Y. Sup. Ct., N. Y. Co. June 25, 1946).

Garbage—Collection and Disposal of as Governmental Function—Transportation outside City

In action against city for damages for wrongful death, where deceased and another were employed by defendant to transport by truck garbage from city to a place five miles from corporate limits, where it was dumped in a hog lot owned by persons who paid the city a consideration therefor, and by reason of the negligence of other employe, who was driving the truck, the deceased was run over at the place of the delivery of the garbage by the truck, causing injuries from which he died, held that in the collection and disposal of garbage, a city acts for the public health, and discharges a governmental function and is absolved from liability for negligence of its employes, and the mere fact that a city in the disposal of garbage, collected within the city, transported it by truck to premises of another, without the city, who paid a consideration therefor, did not convert the governmental function into a proprietary function. *Shearer* v. *City of Tulsa*, 172 Pac. (2d) 603 (Okla., Sept. 17, 1946.)

Horseflesh—Sale as Dog Food—Violation of Federal and Local Regulations

Where company marketed dog food consisting of horseflesh not in hermetically sealed containers so that under both federal and local regulations of the City of New York, it was required to decharacterize its product, company had no cause for complaint against administration of the local regulation, since both regulations could co-exist and the city might enforce the local regulation at least until such time as it was ousted by the Federal authorities exercising their own paramount jurisdiction. *Quaker Oats Co.* v. *City of New York*, 68 N. E. (2d) 593 (Ct. of App., of N. Y., July 23, 1946).

Intoxicating Liquor—City Prohibition When Allowed by State

City ordinance of Springfield limiting the number of places at which intoxicating liquor may be sold within city is a "regulatory" as distinguished from a "prohibitory" measure, and is not inconsistent with state Liquor Control Act as attempting to prohibit package sales of 5% beer which under the Act, the city may not do. *State ex rel. Hewlett* v. *Womach*, 196 S. W. (2d) 809 (Mo., Sept. 9, 1946). Reh. den. Oct. 14, 1946.

Ordinances—Coal Business—Revocation of Permit—Due Process

A St. Louis ordinance which authorized smoke commissioner to revoke permit for carrying on business of coal dealer or to disapprove any application for approval of board of public service when commissioner finds that issuance or continuance of any permit would not be consistent with public welfare, held unconstitutional as denying due process for failure to set up any standards of guidance or limitation and as not applicable to all alike under same circumstances. *Triangle Fuel Co.* v. *Caulfield*, 196 S. W. (2d) 295 (Mo., July 8, 1946).

Parks—Regulation Requiring Permit for Speeches in—Constitutionality

In proceeding charging defendants with violating regulation of Department of Parks of New York City, held that regulation prohibiting making of speeches and harangues and exhibition of placards in parks or park streets without permit does not unconstitutionally repress rights of free press, speech and assembly, as applied to unlicensed demontrators creating disturbance during official reception for foreign dignitary in city ball park. *People* v. *Nahman*, 64 N. Y. S. (2d) 644 (City Magistrates' Ct. of N. Y. C., May 10, 1946).

Parks—Use as Veterans Housing Site—Misuser of Land

Where realty dedicated by private owner to city for use as public park had never been developed by city as a park, but had remained substantially in same condition as when dedicated, and extreme housing shortage existed in community, held that city's act in leasing realty to war veterans' organization for temporary site of trailer houses leased from the Federal Housing Authority for World War II veterans and their families was not a misuser and would not be enjoined on suit of adjacent property owners. *Hyland* v. *City of Eugene*, 173 Pac. (2d) 464 (Ore., Oct. 22, 1946).

Playground—Liability of City for Accident Occurring at

One who was injured in public playground while watching handball game, when knocked to ground by infant on tricycle, was not entitled to recover from city for injuries sustained, where there was no evidence of violation by city of a duty that had any causal relation to accident. *Laub* v. *City of New York*, 65 N. Y. S. (2d) 261 (N. Y. App. Div., Oct. 14, 1946).

Vacant Office—Authority of Governor to Fill

In action for declaration that plaintiff was entitled to office of mayor pro tem. of City of Covington and injunction preventing defendant from usurping office, held that, resignation of mayor of second-class city, and failure of newly elected board of commissioners to agree upon mayor pro tem., did not entitle commissioner previously elected mayor pro tem. to continue in such office beyond term as commissioner he was serving when so elected, though he had already been re-elected for another term as commissioner, and under statute authorizing Governor by appointment to fill vacancy in any office for which no other provision is made by law, Governor had authority to appoint mayor pro tem. *Culbertson* v. *Morre*, 196 S. W. (2d) 308 (Ky. App., June 18, 1946).

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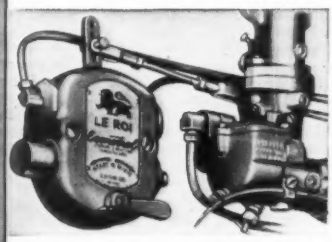
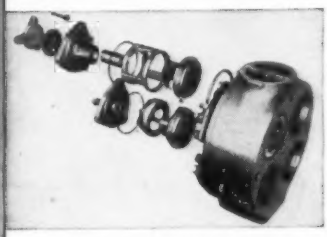
that's what users say about dependable, economical LE ROI AIRMASTER



Here it is in one handy unit — the Econotrol's simplicity makes it foolproof and trouble-free. There are no complicated adjustments to be made. Dependable regulation plus slower piston speeds provide unusual economy, as well as long and faithful performance.



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Sure, we've tested AIRMASTERS and tested them thoroughly. The results prove that they are unexcelled — that they produce air at low cost and with little trouble. But, despite our 30 years of compressor-engineering experience, we didn't stop there. We didn't want our own pride in doing a swell job of designing to influence our final decisions. That is why we shipped AIRMASTERS to all parts of the country.

Here's what happened — orders were received in greater quantities than ever before (except during the war years when we built over 6,500,000 cfm of portable air power for the armed forces). Dependability and economy were given as the basic reasons for buying AIRMASTERS. Here are just two of the many features that are partly responsible for the money-saving performance of these outstanding portable compressors:

The patented, fuel-saving Econotrol adjusts engine speed to the job-air requirements — acceleration and deceleration are gradual; fuel economy greater; engine and compressor life longer. Furthermore, the Econotrol maintains higher average working pressures so that air tools do more work.

Cushioned, Super-finished AIRMASTER Valves provide the most efficient, trouble-free means of *delivering* air. All the valves; i.e., intake, discharge, high and low pressure are 100% interchangeable. They are individually magnafluxed, and the accuracy of their seating surfaces is measured in microns. This accounts for their long life and high efficiency.

AIRMASTER sizes range from 60 to 500 cfm. All styles of mountings are available, and you can have your choice of gasoline or diesel-engine power. Get the most out of your equipment dollar — get portable air power at its best — get an AIRMASTER*. See your nearest Le Roi distributor or write for bulletins giving complete details.

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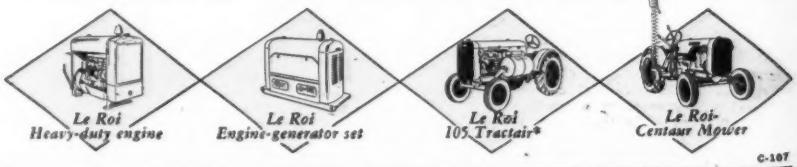


Le Roi Heavy-duty engine — *Le Roi Engine-generator set* — *Le Roi 105 Tractair** — *Le Roi-Centaur Mower*

C-107

Conventions

When and Where

Conventions listed this month for the first time are indicated by an asterisk (*)

Feb. 11-14—St. Louis, Mo.
COMMUNITY CHESTS AND COUNCILS, INC. Annual Convention (Hotel Statler). Exec. Dir., Ralph K. Blanchard, 55 E. 44 St., New York.

Feb. 13-15—Chicago, Ill.
ASSOCIATED EQUIPMENT DISTRIBUTORS. Annual Meeting (Edgewater Beach Hotel). Exec. Sec., C. W. Winchester, 1928 Eye St. NW, Washington, D. C.

Feb. 17-18—Chicago, Ill.
ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS. Annual Meeting and Technical Sessions (Stevens Hotel). Sec.-Treas., W. J. Emmons, University of Michigan, Ann Arbor, Mich.

Feb. 17-20—Chicago, Ill.
AMERICAN ROAD BUILDERS' ASSOCIATION. Annual Convention (Palmer House). Engr.-Dir., C. M. Upham, 1319 F St., NW, Washington.

Feb. 19—New Brunswick, N. J.
AMERICAN WATER WORKS ASSOCIATION—NEW JERSEY SECTION. Winter Meeting (Hotel Roger Smith). Sec., C. B. Tygert, Box 178, Newark.

Feb. 23-26—St. Louis, Mo.
AMERICAN CONCRETE PIPE ASSOCIATION. Annual Convention (Hotel Statler). Managing Director, H. F. Peckworth, 226 N. La Salle St., Chicago, Ill.

Feb. 25-27—Grand Rapids, Mich.
CONFERENCE ON HIGHWAY ENGINEERING. Annual Meeting (Pantlind Hotel). Sec., R. L. Morrison, University of Michigan, Ann Arbor, Mich.

Feb. 26-28—Atlantic City, N. J.
ASSOCIATION OF HIGHWAY OFFICIALS OF NORTH ATLANTIC STATES. Annual Meeting and Convention (Hotel Traymore). Sec.-Treas., A. L. Grover, State Highway Dept., Trenton, N. J.

Feb. 28-Mar. 1—Harrisburg, Pa.
PENNSYLVANIA STATE ASSOCIATION OF BOROUGHS. Annual Convention (Penn-Harris Hotel). Pres., T. F. Chrostwaite, Hanover, Pa.

***Mar. 10-12—New Orleans, La.**
LOUISIANA MUNICIPAL ASSOCIATION. Annual Convention (St. Charles Hotel). Sec.-Treas., Mrs. Henry Jastremski, City Hall, Baton Rouge, La.

***Mar. 10-12—Chicago, Ill.**
NATIONAL PUBLIC HOUSING CONFERENCE, INC. Annual Meeting (Palmer House). Exec. Vice-president, L. F. Johnson, 1015 Fifteenth St. NW, Washington 5, D. C.

Mar. 13-14—Wichita, Kans.
AMERICAN WATER WORKS ASSOCIATION—KANSAS SECTION, AND KANSAS SEWAGE WORKS ASSOCIATION. Annual Meeting (Hotel Broadview). Sec.-Treas., Paul D. Haney, State Board of Health, Lawrence, Kans.

Mar. 13-15—St. Paul, Minn.
AMERICAN WATER WORKS ASSOCIATION—MINNESOTA SECTION. Annual Conference (Lowry Hotel). Sec.-Treas., R. M. Finch, 416 Flour Exchange, Minneapolis 15, Minn.

Mar. 19-21—Trenton, N. J.
NEW JERSEY SEWAGE WORKS ASSOCIATION. Annual Meeting (Stacy-Trent Hotel). Sec.-Treas., M. S. Kachorsky, Box 283, Manville.

Mar. 31-April 2—Chicago, Ill.
MIDWEST POWER CONFERENCE. Annual Conference (Palmer House). Conference Director, S. S. Winston, Evening Division, Illinois Institute of Technology, Chicago, Ill.

April 3-5, 1947—Clemson, S. C.
SOUTH CAROLINA WATER AND SEWAGE WORKS ASSOCIATION. Annual Meeting and Short School (Clemson College). Sec., D. F. Frick, 418 State Office Bldg., Columbia, S. C.

April 10-11—Buffalo, N. Y.
AMERICAN WATER WORKS ASSOCIATION—NEW YORK SECTION. Spring Meeting (Hotel Statler). Sec.-Treas., R. K. Blanchard, 50 W. 50 St., New York 20, N. Y.

April 13-19—San Francisco, Calif.
NATIONAL CONFERENCE OF SOCIAL WORK. Annual Meeting (Civic Auditorium). Gen. Sec., Howard R. Knight, 82 N. High St., Columbus 15, Ohio.

April 14-16—Fayetteville, Ark.
ARKANSAS WATER AND SEWAGE WORKS CONFERENCE. Annual Conference (Engineering Building). Sec., Harrison Hale, University of Arkansas, Fayetteville, Ark.

April 14-16—Montreal, Canada.
AMERICAN WATER WORKS ASSOCIATION—CANADIAN SECTION. Annual Convention (Mount Royal Hotel). Sec., Dr. A. E. Berry, Ontario Dept. of Health, Parliament Bldg., Toronto, Ontario.

April 17-18—Chicago, Ill.
AMERICAN WATER WORKS ASSOCIATION—ILLINOIS SECTION. Spring Meeting (Congress Hotel). Sec.-Treas., H. A. Tolburg, 2020 S. Fifth St., Springfield, Ill.

April 23-24—Havre, Mont.
MONTANA SEWAGE WORKS ASSOCIATION. Annual Meeting (Havre Hotel). Sec.-Treas., H. B. Foote, State Board of Health, Helena, Mont.

***April 24—Atlantic City, N. J.**
NEW JERSEY MOSQUITO EXTERMINATION ASSOCIATION. Annual Meeting (Hotel Haddon Hall). Sec., T. D. Mulhern, New Brunswick, N. J.

April 25-26—Havre, Mont.
AMERICAN WATER WORKS ASSOCIATION—MONTANA SECTION. Annual Meeting. Sec., C. W. Brinck, State Board of Health, Helena, Mont.

April 28-30—Milwaukee, Wis.
AMERICAN PLANNING AND CIVIC ASSOCIATION. Citizens Conference on Planning (Hotel Pfister). Exec. Sec., Miss Harlean James, 901 Union Trust Bldg., Washington, D. C.

April 28-May 1—Washington, D. C.
CHAMBER OF COMMERCE OF THE UNITED STATES. Annual Meeting (Chamber of Commerce Building). Gen. Mgr., Ralph Bradford, 1615 H St. NW, Washington, D. C.

***May 5-7—Cincinnati, Ohio**
AMERICAN SOCIETY OF PLANNING OFFICIALS. Annual Meeting (Netherlands Plaza Hotel). Exec. Dir., W. H. Blucher, 1313 East 60 St., Chicago 37, Ill.

May 15-16—Port Angeles, Wash.
ASSOCIATION OF WASHINGTON CITIES. Annual Meeting. Acting Sec., Joshua H. Vogel, University of Washington, Seattle, Wash.

May 18-20—Philadelphia, Pa.
PENNSYLVANIA STATE ASSOCIATION OF TOWNSHIP COMMISSIONERS. Annual Conference (Benjamin Franklin Hotel). Sec., H. A. Fritschman, Havertown, Pa.

May 21-22—Lafayette, Ind.
INDUSTRIAL WASTE UTILIZATION CONFERENCE. Annual Conference (Purdue Memorial Union Building). Chairman, D. E. Bloodgood, Purdue University School of Engineering, Lafayette, Ind.

***May 21-23—Cleveland, Ohio**
AMERICAN PUBLIC POWER ASSOCIATION. Annual Convention (Hollenden Hotel). Gen. Mgr., Carlton L. Nau, 1129 Vermont Ave. NW, Washington 5, D. C.

May 26-27—Albany, N. Y.
NEW ENGLAND SEWAGE WORKS ASSOCIATION. Joint Spring Meeting with NEW YORK SEWAGE WORKS ASSOCIATION (Hotel Ten Eyck). Sec.-Treas., W. E. Merrill, 511A State House, Boston, Mass.

***May 26-29—New York, N. Y.**
MUNICIPAL FINANCE OFFICERS' ASSOCIATION OF UNITED STATES AND CANADA. Annual Meeting (Hotel Pennsylvania). Exec. Sec., Miner B. Phillipps, 1313 East 60 St., Chicago 37, Ill.

May 26-29—Chicago, Ill.
NATIONAL FIRE PROTECTION ASSOCIATION. Annual Meeting. (Palmer House). Managing Director, Percy Bugbee, 60 Batterymarch St., Boston, Mass.

June 4-6—Saratoga Springs, N. Y.
NEW YORK STATE ASSOCIATION OF CITY AND VILLAGE CLERKS. Annual Meeting. Sec., B. Nedd Sparks, Tupper Lake, N. Y.

***July 7-10—Toronto, Canada**
SMOKE PREVENTION ASSOCIATION OF AMERICA. Annual Meeting (Royal York Hotel). Sec., Frank A. Chambers, 139 N. Clark St., Chicago, Ill.

***July 7-11—Cincinnati, Ohio**
NATIONAL EDUCATION ASSOCIATION. Annual Meeting. Exec. Sec., Willard E. Givens, 1201 Sixteenth St. NW, Washington, D. C.

July 8-11—Winnipeg, Canada
CANADIAN FEDERATION OF MAYORS AND MUNICIPALITIES. Annual Conference (Hotel Royal Alexandria). Exec. Director, Miss J. Allan, Mount Royal Hotel, Montreal, Quebec.

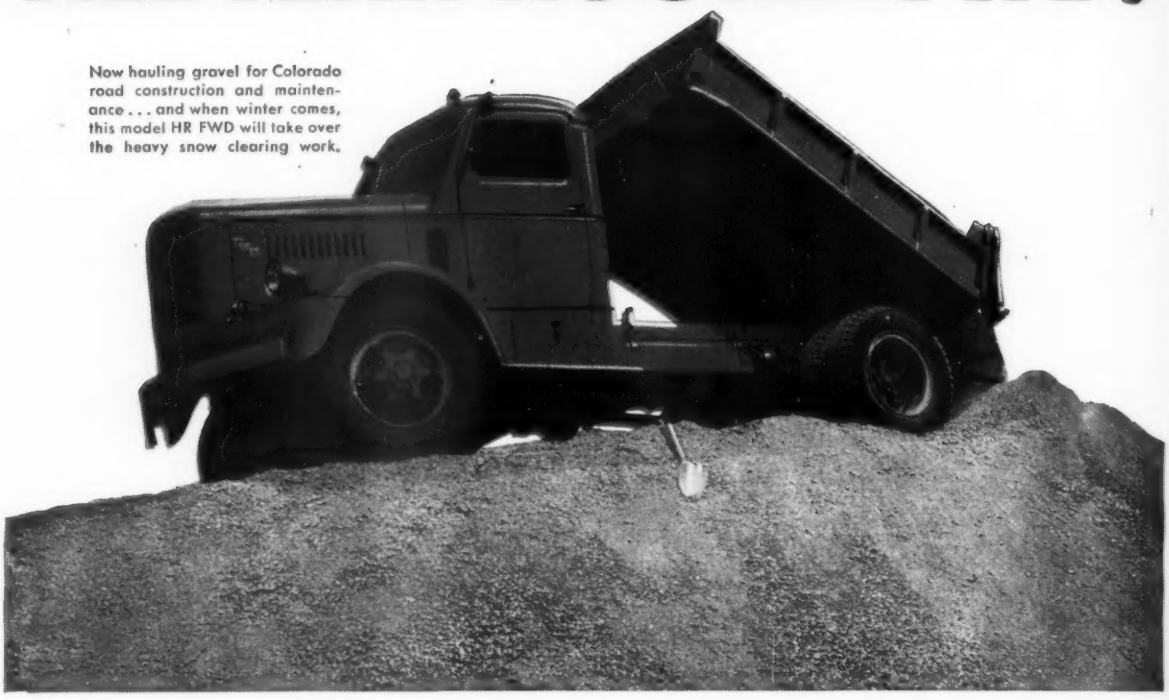
***July 21-23—Salt Lake City, Utah**
NATIONAL ASSOCIATION OF COUNTY OFFICIALS. Annual Convention (Hotel Newhouse). Sec.-Treas., George F. Simmons, Ogden, Utah.

July 21-25—San Francisco, Calif.
AMERICAN WATER WORKS ASSOCIATION AND THE FEDERATION OF SEWAGE WORKS ASSOCIATIONS. Annual Conference. Sec., A.W.W.A., H. E. Jordan, 500 Fifth Ave., New York, N. Y. Sec., F.S.W.A., W. H. Wisely, 325-26 Illinois Bldg., Champaign, Ill.

Brochure on War Memorials

Commemoration Through Community Services, **a handsome brochure on living memorials, is available from *The American City*, 470 Fourth Ave., New York 16, N. Y., for $1.00. Special price for quantity orders.**

ON ALL HEAVY WORK ALL YEAR 'ROUND..FWDs



Now hauling gravel for Colorado road construction and maintenance . . . and when winter comes, this model HR FWD will take over the heavy snow clearing work.

The same rugged plow-equipped FWDs that smash through heavy snow banks to keep highways open throughout the winter, are also unexcelled all the rest of the year for road construction and maintenance work. The "ONE truck for MANY jobs" takes on ALL kinds of heavy work, all year 'round, with dependability and dispatch, at low cost. FWDs are a sound investment for highway construction and all-year maintenance. They remain first choice in this heavy-duty highway field because the true FWD four-wheel-drive principle gives FWDs what it takes for consistent, outstanding performance. *See the nearest FWD Distributor, or write to . . .*

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Amer... Foremost Heavy-Duty Truck

One of seven new FWD Model HA trucks added to the Utah State Highway Commission's fleet, with 1100-gal. oil tank, for road surfacing.

New Publications

Municipal and Civic

Public Works Administration

MUNICIPAL PUBLIC WORKS ADMINISTRATION.—*The International City Managers' Association, 1313 E. 60th Street, Chicago 37, Ill. Third Edition,* 1946. 457 *pp.*

This book is a revised edition of one of a series of eight volumes on municipal administration published by the International City Managers' Association for the Institute for Training in Municipal Administration. The books are now available as reference volumes for public officials and students of local government. Training courses based upon the texts will continue to be made available through the Institute.

The volumes approach municipal problems from the point of view of top-level administrators—city managers, department heads, and their principal aides. Their emphasis is on the "how" rather than the "what" of municipal administration. Their objective is to help the administrator analyze his duties and responsibilities and so suggest approaches and methods used by other administrators.

The following topics are covered in this third edition of *Municipal Public Works Administration*: public works as a municipal function; street improvement and maintenance; street cleaning and snow removal; street lighting; refuse collection and disposal; sewerage and sewage disposal; waterworks; airports; construction by contract; equipment management; organization; personnel management; planning public works; measurements, records and administrative reports; and public relations. A selected bibliography on public works administration is also included.

Housing Project Design

PUBLIC HOUSING DESIGN. A REVIEW OF EXPERIENCE IN LOW-RENT HOUSING.—*Federal Public Housing Authority, National Housing Agency. Superintendent of Documents, Washington 25, D. C.* 1946. 294 *pp.* $1.25.

This review is a summary of experience gained during more than a decade in planning low-rent developments. Developers seeking to enter the rental housing field, and private builders who have committed themselves to meeting the needs of more middle-income families and some lower-income families will find it exceptionally useful. It is also required reading for the local housing authority and its staff, including its architects and engineers.

Philip Klutznick, former commissioner of the Federal Public Housing Authority, states in the foreword, "The past decade has seen a trend toward community developments as distinguished from haphazard, scattered lot or subdivision building. More and more it is becoming evident that the well-planned and executed community development is both a good business risk and a desirable place to live." It is the community development type of project with which this publication is concerned, and the wealth of experience accumulated in the construction and operation of public housing projects. The booklet includes many excellent photographs.

Municipal Hospitals

MUNICIPAL HOSPITALS. — *Article appearing in* The Municipality, *December* 1946. *League of Wisconsin Municipalities, 30 East Johnson St., Madison 3, Wis.* 7 *pp. Reprints available at* 25 *cents.*

Although directed at Wisconsin municipalities, this article contains much practical advice which should be of interest to local jurisdictions interested in establishing hospitals.

The article has sections on determining the need for, the ability to finance, and the planning and operation of hospitals. Suggestions are included for further reading, and there is also a model ordinance for creating a municipal hospital board.

Municipal Parking

MUNICIPAL PROVISION OF PARKING FACILITIES—STATE LAWS AND CITY PROJECTS.—*By James C. Yocum, assisted by Joan P. Whipple, Bureau of Business Research, College of Commerce and Administration, The Ohio State University.* 1946. *Tables.* 117 *pp.* $1.25.

This is an over-all study of an analysis of the legislative status, prevalence, and chief characteristics of municipally owned off-street parking facilities in the United States.

Included in the booklet are three appendices in which are discussed: state laws authorizing cities to provide offstreet parking facilities; bills in state legislatures; and text of laws of Kentucky, California and Pennsylvania authorizing cities or other government agencies to provide off-street parking facilities.

Electrical Code

NATIONAL ELECTRICAL CODE. — *National Fire Codes. Volume Five. National Fire Protection Association International, 60 Batterymarch St., Boston 10, Mass.* 1947. *Tables, Diagrams and Examples.* 408 *pp.* $2.00.

The National Electrical Code is presented here with the various amendments and additions which have been made since it was originally drawn in 1897. This handy edition, which is intended for desk and library references, supersedes the 1940 edition and interim amendments. It was adopted by the National Fire Protection Association at its annual meeting in 1946.

The first four chapters are of general application, while the others apply to installations which involve special occupancies, special equipment, or other special conditions.

Proposed Detroit Civic Center

THE CIVIC CENTER PLAN.—*City of Detroit, A Master Plan Report, No. 3 of a series. Detroit City Plan Commission, Griswold Building, 1214 Griswold St., Detroit, Mich.* 1946. 24 *pp.*

This attractively illustrated report outlines the opportunity for Detroit to create a civic center that would be a symbol of the city. It would also provide a great and lasting war memorial, furnish the city with sorely needed public auditoriums and exhibition halls, increase efficiency and bring about substantial operating economies in the municipal government, and, finally, contribute to the convenience of the public by concentrating, in one easily accessible location, the numerous government offices now housed in dozens of scattered buildings.

Student Housing Study

HOUSING IN FRONT ROYAL, VIRGINIA, FACTS AND TRENDS.—*The School of Social Sciences and Public Affairs, The American University, 1901 F St., NW, Washington 6, D. C.* 1946. 93 *pp.*

This study of the housing situation in Front Royal, Va., presents an over-all pattern for similar studies which might be undertaken by communities which want to know how to obtain the facts about their local problems.

The study was undertaken by a class of students at The American University in cooperation with the National Housing Agency. Members of the class compiled the information and data necessary, undertook the analysis and prepared the final report in the effort to learn about the manner in which housing markets operate.

The conclusions of the report are that the community's immediate task is to offer every sound encouragement possible to the building industry; that housing standards should be established; that the relation of housing to community development warrants the best thought of the local citizenry, and that the housing analysis and figures on housing needs should be kept up to date.

The Case for the Small Town

SMALL TOWN.—*Granville Hicks. The Macmillan Company, 60 Fifth Ave., New York, N. Y.* 1946. 176 *pp.* $3.00.

This book is written as the result of an intellectual's intensive experience and extensive study in a small upstate New York town of less than 1,000 population, where the author has lived since 1935.

Mr. Hicks describes with stringent honesty what the people of a small town talk about and think about, their opinions and morals, their religion, education, economic patterns and political life. He believes fervently in small towns, and has himself become absorbed in his community's activities. Although he declares that the old basis of the small town has been destroyed and cannot be rebuilt, he believes new foundations can be established. The author points out the necessity for intellectuals to participate in community affairs and take part in local organizations. Mr. Hicks is especially aware of the urgency of the need for solving the small town's economic problems, if further exodus of population to the large cities is not to be continued, and he emphasizes the importance of some national planning if small towns are to survive in our economy.

He recognizes that there is no "clamor" for a community plan in his particular town, and that as things stand there would be a great deal of bitter, unreasonable opposition to any kind of planning. We would do well to work on the problem of planning at both ends—on the national and local levels, he declares, adding that "participation in local affairs can prepare men and women for participation in the affairs of the larger society." The book concludes as he is anticipating a meeting of the board of fire commissioners of which he is a member, and the reader is left with the feeling that the author is thoroughly enjoying a satisfying life experience in his own small town.

Community Planning Framework

RED WING AND THE POST-WAR CHALLENGE.—*Roland S. Vaile. The University of Minnesota Press, Minneapolis, Minn.* 1946. 38 *pp.* 50 *cents.*

This is the last in a series of eleven pamphlets issued as the result of a research project, entitled "The Community Basis for Postwar Planning" which was supported by a grant from the Graduate School, University of Minnesota.

A number of investigations were focused in one community, Red Wing, Minn., as an example of what was happening in a typical small American municipality in a period of war and challenge, change and uncertainty. The question raised in this concluding pamphlet is: "What is left for people in a small American city to plan and control?" Professor Vaile concludes that Red Wing—and every American community—"still has much of its immediate fate in its own hands." The pamphlet shows the place for and the necessity of community-wide planning on both an official and unofficial basis.

The Embarrassment of Success

EVERY now and then a manufacturer succeeds in making a product so outstanding that public demand for it overwhelms production facilities. In his zeal for winning friends he finds himself making enemies—people eager to buy who cannot be assured immediate or even early delivery.

Thus, the earnestness the manufacturer has given to years of research and development—of product improvement and still better product performance—of efficient manufacture and unusual customer service . . . seems to come back to haunt him.

It is the embarrassment of success.

In becoming the world's leading manufacturer of Diesel engines, track-type tractors and motor graders, "Caterpillar" found many buyers forming a waiting line during the years when all products went into war use. To that waiting line were added many more whose favor was won by the illustrious war performance of these machines.

Thus, despite the fact that "Caterpillar" production is at a high point, demand is still outrunning supply. To catch up—and also to provide an extra margin of facilities for future needs—production is being increased as rapidly as possible by an expansion program that is adding *50 per cent more plant.*

"Caterpillar" is deeply conscious of the problems of the many users who prefer and patiently wait for "Caterpillar" products. "Caterpillar" thanks every customer for such patience in awaiting his turn on deliveries. You can be sure that "Caterpillar" effort is the human utmost. It is live, resourceful—determined that, even in the face of material shortages and disturbed economic conditions, there shall be no unnecessary delays.

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Conducting Conferences

HOW TO CONDUCT CONFERENCES.—*By Alfred M. Cooper. McGraw-Hill Book Company, Inc., 330 W. 42 St., New York 18, N. Y.* 1946. 207 *pp.* $2.00.

This book should be of assistance to any man or woman who is called upon to conduct conferences of any type, for whatever purpose. Municipal officials will find the book especially helpful in mastering the rather new art of directing group discussion to a useful conclusion. The author declares that as an instrument of accomplishment, the conference now far outweighs oratory. It has become so much a part of the American way of life, he writes, that we have come to take it for granted and expect that all vital decisions affecting our welfare will be made in conference.

Now that the war is over, the author is of the opinion that we need the pooling of brain power that comes from conference discussion if we are to overcome the obstacles that confront us. A special chapter is devoted to procedure for labor relations conferences.

Recreational Standards

STANDARDS OF RECREATIONAL FACILITIES.—*Bureau of Governmental Research, Association of Washington Cities, University of Washington, Seattle, Wash.* 1946. 120 *pp.*

Standard areas and requirements for individual and dual games, gymnastics and stunts, group or team games, and sports commonly found in community recreation programs, are presented in this manual. Sketches and architectural drawings also are included for each type of activity or recreational need described. It is pointed out that recreation centers are not enough, but that these areas must also have adequate maintenance and supervision.

Although of direct interest to Washington cities, the manual should be a gold mine of information for the park boards, recreation committees, and planning commissions of other cities. An excellent list of suggested reference material and a bibliography are also included.

Planning Explained

PLANNING PROSPECT.—*E. G. R. Taylor. Percy Lund Humphries and Company Limited, 12 Bedford Square, London, W. C.* 1. 1945. 64 *pp.* 6 *shillings.*

This booklet, one of a series, is designed to present, in a less technical manner, much of the material contained in broadsheets of the British Association for Planning and Regional Reconstruction. The association includes people of many professions who believe that physical planning should be based on adequate preliminary survey and that plans would then result from the "composite mind" of a group of people who have mastered the technique of working together, rather than rely upon the inspiration of a master planner.

The booklet asks a number of pertinent and penetrating questions about planning—what it means; why it has become a live issue; whether it will destroy liberty and hamper private enterprise, and what it will demand of us personally. It describes in simple terms the significance of physical, political, economic, social, cultural, and financial planning.

An Industrial Study

YOUNGSTOWN OFFERS INDUSTRY OPPORTUNITY.—*By Herbert S. Swan. The New Industries Committee, Greater Youngstown Area Foundation, 125 West Commerce Street, Youngstown 3, Ohio.* 1946. 96 *pp.*

Emphasizing the availability of workers because of technological strides which have reduced man-hours required to produce a given volume of goods, this report is an interpretation of the basic economic factors which attract and support local industry.

The position of Youngstown in our economy and its resources and assets are described. Because of its enviable financial condition, low debt and tax rate, the report states that Youngstown has a competitive edge over many cities seeking new industries. The report should be of interest to other municipalities because of its careful cataloging and interpretation of all area assets.

Shifting Taxes to the Land by Untaxing Improvements

THE SELF-SUPPORTING CITY.—*By Gilbert M. Tucker. Robert Schalkenbach Foundation 50 E. 69 St., New York 21, N. Y.* 1946. 108 *pp.* $1.00.

This book expounds the theory of untaxing building improvements and shifting the tax load to the land as the remedy for many of the financial ills of our cities. The author declares that the present system of realty taxation is detrimental to building activity, is largely responsible for the growth of slums and blighted areas, and is a major reason for the housing shortage in this country.

The essence of the author's argument is that taxing buildings discourages construction, raises costs, and restricts supply; while taxing land values does not decrease the size of the city a particle, but discourages speculation and makes more land available by placing it on the market.

He states that the value of the building is the product of individual enterprise and should not be taxed, while on the other hand, the value of the land is the product of the common life and of government and, therefore, should contribute substantially to the city treasury. Using several cities as examples of trends in tax delinquency and forfeiture, the author presents a formula which would gradually transfer the tax burden from improvement to the land within a specified period of time, and which would result, he believes, in putting city finances on a much more stable footing.

The book is written in journalistic style, for understanding by the layman, and should serve as a stimulating eye-opener to those who have been looking for a general approach toward solving city tax and fiscal problems.

Government Text

THE GOVERNMENT OF THE UNITED STATES—NATIONAL, STATE, AND LOCAL.—*William Bennett Munro. The Macmillan Co., 60 Fifth Ave., New York, N. Y. Fifth Edition.* 1946. 887 *pp.* $4.50.

This is a textbook providing a general survey of the principles and practice of American government. It endeavors to explain the origin and purpose of American governmental institutions, to indicate what they are expected to do, and to show how to do it.

Sections on the following subjects are included: background and basis of American government; foundations of political power; the national party system; the national executive; the organization of Congress; Congress in action; the national judiciary; state government and administration, and municipal and local government.

Preventing Delinquency

WHAT SEATTLE ORGANIZATIONS ARE DOING TO COMBAT JUVENILE DELINQUENCY BEFORE COURT ACTION.—*By John C. Bollens. Municipal League of Seattle for Governmental Research, 316 Marion Bldg., Seattle 4, Wash.* 1946. *Mimeo.* 9 *pp.*

This research report is a survey study of the work and facilities of many Seattle community organizations that have recreational and preventive programs to avoid juvenile delinquency. The report reveals the seriousness of the situation in a typical city, but declares that if it were not for the existing 167 public and private agencies and groups already helping out on the problem, conditions would be much worse.

NACOS Conference

CONFERENCE PROCEEDINGS, 1946.—*Annual meeting of the National Association of Commercial Organization Secretaries, Miami, Fla. Copies may be obtained from the Executive Secretary, 1615 H St., NW, Washington 6, D. C.* 219 *pp.*

Several speeches in this booklet should be of interest to municipal officials, including "Plan Your Town—Or Lose It" by Walter H. Blucher, "Industry—Spearhead of Community Progress" by Arthur M. Field, and "Population Trends and Your Future" by Dr. Vergil Reed.

Suggested Building Code Standards

BUILDING CODE REQUIREMENTS FOR NEW DWELLING CONSTRUCTION (BMS-107).—*National Bureau of Standards.* 1947. 50 *pp. Obtainable from Superintendent of Documents, Government Printing Office, Washington 25, D. C.* 20 *cents.*

The recommended requirements in this bulletin, developed primarily by the National Housing Agency, are concerned with moderate size individual and multiple-family dwellings of the type being built under the Veterans Emergency Housing Program. The bulletin is offered as a guide to assist local communities in modernizing or revising their codes.

The recommendations aim at providing sound construction without excessive cost, and they make adequate provision for recognizing new developments in techniques and materials as they occur. The principle followed in the recommendations is to require good engineering practice, recognizing conformity to well developed standards as evidence of such practice.

Community Centers

COMMUNITY CENTERS AS LIVING WAR MEMORIALS.—*Compiled by James Dahir for Social Work Year Book Department. Russell Sage Foundation, New York.* 1946. 66 *pp.* 50 *cents.*

The publications chosen by the compiler in this bibliography develop the theme that war memorials should be living instruments of community service and that the well-run center—large or small—can be such an instrument. About two hundred references are given by Mr. Dahir, on half of which he makes brief but interesting comments, noting especially the postwar interest in living war memorials and at the same time growing awareness of the need for democratic community organization.

Greenbelt Examined

GREENBELT REVISITED.—*By Frederick Gutheim. Article appearing in* Magazine of Art, *January* 1947. 5 *pp. Reprints obtainable at a small charge from American Federation of Arts, Barr Building, Washington 6, D. C.*

Analyzing the growth and development of Greenbelt since its inception more than ten years ago, this article explains why that planned community continues to attract such enormous attention. Although it contains a population of less than 10,000, the community is unique as a demonstration of the possibilities of housing and community building, and thousands of Americans have traveled to the Washington, D. C., suburb to see it.

The author declares that within the framework of Greenbelt can be found the guiding principles for future free-standing satellite towns that can be built virtually independent of action by the Federal government.

New Directory of Housing Developments and Agencies

HOUSING DIRECTORY 1946-47.—*National Association of Housing Officials, 1313 East 60th Street, Chicago 37, Ill.* 1946. 240 *pp.* $3.00.

There is the greatest potential value in the new section on housing developments contained in this directory. Listed in that section are some 1,500 large-scale housing developments in the country. They are arranged geographically, with managers' names and addresses, the number of units in each development, and code symbols classifying each development under type of managing agency by which it is operated and/or the special financing plan under which it was developed or subsidized. Public housing projects, large-scale war housing, FHA-insured rental housing, insurance-company-operated housing, and philanthropically endowed housing are included in the listing.

The directory also gives information on official and unofficial international, national, state, regional, county, and municipal agencies concerned with housing. A section is devoted to housing statistics, and another section shows maps of the various field offices, districts, and regions of federal housing agencies.

REGISTRATIONS *SHOW* IT—
OPERATORS *KNOW* IT!

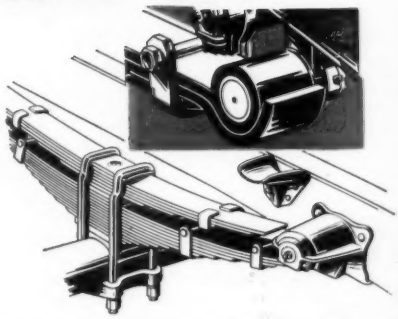
This Ford 134-inch wheelbase 2-ton unit, with dual-range rear axle and auxiliary springs, is equipped with six-by-eight-foot Dump body and hoist by Gar Wood Industries, Detroit, Mich.

"FORD TRUCKS LAST LONGER!"

ONE big reason:

FORD SPRINGS STAND UP!

Ford spring engineering provides unsurpassed endurance. Ford special alloy spring steel, with tensile strength of 200,000 pounds per square inch, assures high fatigue resistance, while deflection rates scientifically proportioned to each vehicle's gross weight assure good riding with generously ample load capacity. Long-wearing shackle bushings of steel-backed bronze reduce maintenance expense. Ford special, wrapped "safety eyes" on heavy duty front springs (illustrated) reduce stress on main leaves, afford longer life and extra safety. Hydraulic *double-acting* shock absorbers on light duty models further ease the ride and control the load.



Ford

ONLY FORD GIVES YOU ALL THESE LONG-LIFE TRUCK FEATURES: Your choice of two great engines, the 100-H.P. V-8 or the 90-H.P. Six—semi-centrifugal clutch that needs no maintenance lubrication—rear axle design that takes all weight-load off the shafts (¾-floating in half ton units, full-floating in all others)—heavy channel section frames, *doubled* between springs in heavy duty models—big, easy-action brakes, with heavy, cast drum surfaces, non-warping and score-resistant—extra-thick sheet metal in cabs, cowls, skirts and fenders—all told, more than fifty such examples of Ford endurance-engineering. That's why FORD TRUCKS LAST LONGER . . . why 7 out of 11 of all Ford Trucks built since 1928 are still in service. No wonder the average age of all Ford Trucks in use is nearly 9 years! Stamina is built into them! See your Ford Dealer NOW!

FORD TRUCKS

MORE FORD TRUCKS IN USE TODAY THAN ANY OTHER MAKE

Parking Manual

PARKING MANUAL. — *Traffic Engineering & Safety Department, American Automobile Association, Washington 6, D. C.* 1946. 181 *pp.*

Containing a wealth of information and suggestions, this parking manual is one of the most complete and thorough studies of the problem that has yet been published.

It is directed to public officials, business, professional and civic groups, and individuals interested in improving parking conditions in their communities.

In the effort to stimulate action programs on parking problems, the manual describes specific methods for handling typical situations. The illustrations and diagrams themselves should be very useful in promoting valuable ideas on just what to do to provide more adequate and more convenient facilities.

Appendices include model traffic ordinances pertaining to parking, as well as an extensive bibliography.

Planning Shopping Centers

SHOPPING CENTERS. — *Discussion of standards and planning in* Urban Land, *December* 1946. *Official publication of the Urban Land Institute, 1737 K St., N.W., Washington 6, D. C.* 8 *pp.*

This issue of *Urban Land* contains summaries of two forum sessions covering community shopping centers and residential development. Emphasis is placed on advance planning for the factors involved in building shopping centers that will be a credit to the city and a service to the neighborhood where they are needed. Design, parking facilities, size of the center, and store selection and grouping are among the topics discussed.

Subdivision Guide

NEIGHBORHOODS PLANNED FOR GOOD LIVING—SUBDIVISION STANDARDS AND REGULATIONS.—*Toledo-Lucas County Plan Commissions, Court House, Toledo 2, Ohio.* 1946. 37 *pp.*

The primary aim of this well-prepared booklet is twofold: to help the subdivider achieve a high standard of excellence in the planning of his subdivision, and to inform all subdividers as to the minimum standards and requirements on which the city and county will insist.

The booklet points up the responsibility of the planning commissions in planning new subdivisions and also in coordinating the layout of small subdivisions so that the small pieces will fit together and result in a well-planned neighborhood.

The full text of local subdivision laws and regulations, and a suggested subdivision procedure are also included.

Public Health Books

GOOD BOOKS ON PUBLIC HEALTH.—*Municipal Reference Library Notes, December* 1946. *Municipal Reference Library, Room 2230, Municipal Building, New York 7, N. Y.* 8 *pp.*

This is a selected list of the year's publications on public health and hospitals that are available in the Public Health Division of the Municipal Reference Library of New York City.

A brief annotation describes each book's content. The following subjects are included: food and dietetics, health education, hospitals, mental hygiene, public health, care of children, nursing, medicine, and diseases.

Slum Costs

THE COST OF SLUMS IN NEWARK.—*By Jay Rumney and Sara Shuman. Housing Authority of the City of Newark, Newark, N. J.* 1946. 36 *pp.*

Comparing two areas of Newark, the report discloses that the burden of slums and blighted areas rests upon taxpayers of the better residential sections of the city. The report is brief, well illustrated, and presents figures and statistics that are not only illuminating, but whose presentation should be a guide for such studies in other cities.

The last section of the report contains tables of up-to-date facts and figures on slum areas in various cities throughout the country.

City Revenue Sources

SOURCES OF MUNICIPAL REVENUE.—*Tennessee State Planning Commission, 432 Sixth Ave. North, Nashville 3, Tenn.* 1946. 12 *pp.*

Indicating that the needs of cities have increased in greater proportion than the funds available, this report attempts to state the financial problem of Tennessee cities in a general way and to indicate some points requiring more complete study.

Included in the report are a discussion of the property tax; the need for new sources of local revenue; various constitutional limitations on local taxation in Tennessee; suggested changes in the property tax, and a discussion of various potential sources of revenue, some of which already are available in Tennessee and others of which are legal in some states. A brief discussion of state taxes shared with local governments in Tennessee is also included.

Citizens' Organizations

CITIZENS' COUNCILS AND COMMUNITY DEVELOPMENT.—*Rhea M. Eckel, Issue Editor. Journal of Educational Sociology, December* 1946. 35 *cents.*

The entire issue of this magazine is devoted to articles about citizens' community councils and what they can do to stimulate interest in community problems and to aid in research and community planning.

Mrs. Eckel, Executive Secretary of the New York State Citizens' Council, outlines that body's activities in fostering an informed public opinion through conferences and work of community-minded people.

State Land Survey for Housing

REPORT ON A RESIDENTIAL AREA SURVEY.—*Massachusetts State Planning Board, 11 Beacon St., Boston, Mass.* 1946. *Mimeo. Tables.* 15 *pp.*

This survey was undertaken to determine the amount of area available for moderately priced homes and rental housing units. The report states that a large amount of land is available within existing regulations for housing purposes in the six metropolitan areas of Massachusetts.

The report emphasizes that the most effective tools for the control of the character of permanent development rest in the hands of each municipality itself.

Federal Administrative Procedure

ADMINISTRATIVE PROCEDURE, A HANDBOOK OF LAW AND PROCEDURE BEFORE FEDERAL AGENCIES.—*Commerce Clearing House, Inc., 214 N. Michigan Ave., Chicago 1, Ill.* 1946. 259 *pp.* $2.00.

This manual may be useful to municipalities which deal with various federal agencies and therefore are interested in the technical administrative procedures of those agencies.

Sewer Charges

SEWER CHARGES, LEVIES AND SPECIAL ASSESSMENTS IN VIRGINIA CITIES AND TOWNS.—*League of Virginia Municipalities, 902 Travelers Building, Richmond 19, Va.* 1946. *Mimeo.* 7 *pp.* 25 *cents.*

This report states briefly for each Virginia municipality the amount and nature of all sewer levies, connection charges, rentals, service charges or other charges imposed for the installation, and maintenance and/or operation of the sewer system.

Urban Redevelopment Bibliography

URBAN REDEVELOPMENT—A SELECTED BIBLIOGRAPHY.—*American Society of Planning Officials, 1313 East 60 St., Chicago 37, Ill.* 1946. *Mimeo.* 18 *pp.* 50 *cents.*

An excellent, well-organized bibliography which, in itself, should do much to promote thinking on the urban redevelopment problem, and help to avoid duplication of research and effort already devoted to the field.

Water Department Report

PASADENA WATER DEPARTMENT'S THIRTY-THIRD ANNUAL REPORT.—*By Morris S. Jones, Chief Engineer and General Manager, Pasadena, Calif.* 1946. *Charts. Illustrations.* 63 *pp.*

In this report the same general outline has been followed as was used in previous ones, so that the year's activities can readily be compared with those of former years. Numerous tables, charts and statistics, as well as a complete financial statement of the Water Department, are included in this attractive report.

Fire Protection Association

THE STORY OF THE NATIONAL FIRE PROTECTION ASSOCIATION INTERNATIONAL. — 60 *Batterymarch St., Boston 10, Mass.* 1946. 12 *pp.*

In this pamphlet, the N. F. P. A., the clearing house for all authoritative information on fire protection and fire prevention, explains its technical activities, field service, public education, and membership. According to the association, its functions are: to provide standards under the guidance of which fire waste may be checked, and to educate the public so that loss of life and injury from fire will be reduced and the needless destruction of property will be halted.

A list of the association's publications are given in the back of the pamphlet.

Engineering Department Report

SYRACUSE DEPARTMENT OF ENGINEERING'S ANNUAL REPORT.—*By Neilson F. Pitts, city engineer. Department of Engineering, Syracuse, N. Y.* 1946. *Mimeo. Illustrations. Tables.* 33 *pp.*

A comprehensive and interesting report on the activities of the department of engineering, covering the period from December 1, 1945 to November 30, 1946.

The "before" and "after" pictures included in the report do much toward making it attractive.

Other Reports Received

ATLANTA, GA.—Headlining Georgia's Progress. Agriculture and Industrial Board, 20 Ivy St., S.E., Atlanta, Ga. 1946. Illus. 16 pp.

—Water and Sewage Progress Report for 1946. Department of Public Health. Mimeo. 8 pp.

BERKELEY, CALIF.—State and Local Finance and Taxation. By Dorothy C. Thompkins. University of California, Bureau of Public Administration, Berkeley, Calif. 1946. Mimeo. 98 pp.

MEMPHIS, TENN.—The Memphis Housing Authority's Annual Report. 1945-46. Memphis Housing Authority, 264 North Lauderdale, Memphis, Tenn. Illus. 32 pp.

NEW ROCHELLE, N. Y.—Parking Survey. Report and Recommendations. National Conservation Bureau, a Division of Association of Casualty and Surety Executives, 60 John St., New York 7, N. Y. 1946. Mimeo. Charts. 37 pp.

RICHMOND, VA.—Directory of Virginia City and Town Officials. Prepared by League of Virginia Municipalities, 902 Travelers Bldg., Richmond 19, Va. 1946. Mimeo, 55 pp.

STORRS, CONN.—Budget Management with Special Reference to Handling Unliquidated Encumbrances. Institute of Public Service, University of Connecticut, Storrs, Conn. 1946. Mimeo. 5 pp.

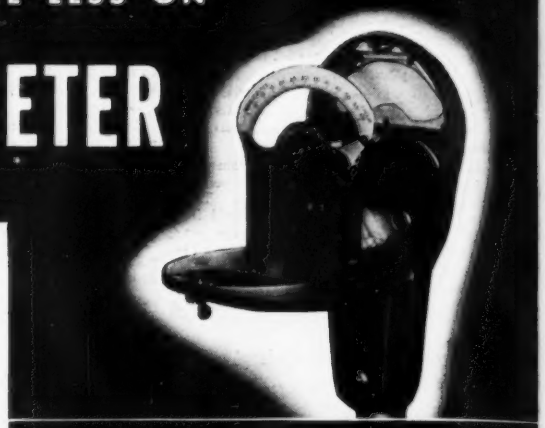
—Budget Control of Capital Purchase. Institute of Public Service, University of Connecticut, Storrs, Conn. 1946. Mimeo. 4 pp.

WASHINGTON, D. C.—American Aviation. Directory. Fall-Winter. 1946-47. Volume Seven, No. Two. American Aviation Publications, American Building, Washington 4, D. C. 671 pp.

—Summary of City Government Finances in 1945. Allen D. Manvel, Chief, Governments Division, Bureau of Census. Charts. 11 pp.

WILMINGTON, N. C.—Annual Report. 1945-1946. Your Municipal Government. J. Fred Rippy, Jr. Illus 40 pp.

Why SERVICE COSTS ARE LESS ON PARK-O-METER



Being *Completely* AUTOMATIC this meter has no external parts for public manipulation. Damage to mechanism by forcing handle on foreign obstacles *cannot happen* with this machine.

The direct ROTARY ACTION principle is simple and positive. There are no delicate adjustments. Coins move under power . . . not by tripping action of coin weight . . . from finger tip to exit, thus eliminating trigger action and sticking of gravitating coins. Shutter-protected slot keeps out moisture, grime and grit, which cause gumming of working parts. Parts are strongly built to meet street service conditions and are made of strictly quality materials.

ECONOMICAL SERVICE

The mechanism lifts out without removal of loose screws. A foreign obstacle can be flipped right out. The case need never be disassembled to reach the mechanism parts. The unit timer snaps on and off. The loosening of two screws drops out the spring barrel. Loosen one nut and the rotary coin driver comes right off. All of these operations save time and eliminate need for bringing mechanisms to and from the shop.

★ ★

Unit mechanism lifts right out—hinged access door opens to horizontal position for servicing convenience.

Every detail of this modern meter is designed for minimum service and is based on more than 12 years of continuous experience in *designing, building* and servicing parking meters in one factory.

Magee-Hale PARK-O-METER COMPANY

COMMERCE EXCHANGE BUILDING • OKLAHOMA CITY 2, OKLAHOMA

MACNICK COMPANY • *Manufacturers* • TULSA, OKLAHOMA

News and Illustrations

Items of interest to city, town and county officials and others concerned with the economical construction and efficient operation of public improvement undertakings

Detroit Diesel Makes Appointments

John C. Campbell has been appointed manager of industrial engine sales, and James W. Brown has been named advertising manager, V. C. Genn, general sales manager for the Detroit Diesel Engine Division of General Motors Corp., Detroit 23, Mich., reported recently. The appointments were made by Mr. Genn at a sales conference held in Detroit where plans were made for activities during 1947.

J. C. Campbell

Mr. Campbell will direct industrial sales of the GM Series 71 diesel engine through Detroit Diesel's distributors and dealers. Following his graduation from the University of Detroit with an engineering degree, he spent several years with the Wright Austin Company and with the Frigidaire Division of General Motors. He joined Detroit Diesel in 1942 as a member of the sales department, studying the wide uses of the GM Series 71 engine in industrial applications. Since 1945, Mr. Campbell has been in charge of advertising and sales promotion activities for the company.

Mr. Brown, who now takes over as advertising manager, has been directly connected with advertising and publication work since his graduation from Yale in 1927. He spent several years on the advertising staffs of leading publications in Cleveland, Memphis, and Dallas, and for the past year has held the position of product news manager for Detroit Diesel. Mr. Brown will continue in charge of product news.

Gallaway Tansferred by Nordberg

James H. Gallaway, district manager of the heavy machinery division of Nordberg Mfg. Co., Milwaukee 7, Wis., has returned to his former midwestern territory with headquarters at Kansas City. His address will be Hyde Park, 36 & Broadway, Kansas City, Mo.

For several years, Mr. Gallaway was in the home office in Milwaukee, engaged in special work in connection with wartime diesel engine production.

Solve Asphalt and Concrete Cutting Problems

Municipalities will find the Concut, Jr., manufactured by Hurstco, Inc., 503 Parkway Bldg., 117 E. Colorado Blvd., Pasadena 1, Calif., useful in marking asphalt or concrete, cutting asphalt joints and samples, cutting safety grooves in slippery ramps, removing sidewalks for underground installations, setting in curbing, replacing sections of "diamond-marked" sidewalks and cutting plumbing and conduit trenching inside buildings.

The Concut, Jr., does some street cutting work. This machine is useful for cutting concrete and sidewalk jobs.

This portable machine, needing only one-man operation, does away with pneumatic hammering and hand chiseling, quickly removes concrete so maintenance crews can start their work, and insures cuts, eliminating unragged edges and permitting a neat replacement of concrete.

Some of the features of this machine include a 14-gallon water tank, a Wisconsin 9.2-hp, 2200 rpm air-cooled motor, the Hurstco "Tru-Kut" caster wheel and adjustable pointer guide, assuring straight accurate cut; a specially designed cutting blade (graduated scale shows exact depth of cut at all times); a guider-follower shoe that holds the blade straight in the cut, and an adjusting crank that controls the blade-cutting depth.

Report on Dresser Earnings

Net earnings of Dresser Industries, Inc., Cleveland, Ohio, for its fiscal year ending October 31, 1946, as previously stated in an interim report to shareholders, totaled $1,037,235 on net sales of $54,783,188, according to the company's annual report to shareholders, made public recently by H. N. Mallon, president of the company. This compares with net earnings of $1,921,628 on net sales of $80,544,911 in the previous year.

John Woodson to Represent Hydraulic Development

John T. Woodson, 506 Independence Bldg., Charlotte. N. C., is now representing the Hydraulic Development Corp., 50 Church St., New York N. Y., in Virginia and the Carolinas. Mr. Woodson will carry, for purchasers in these states, a complete stock of HYDRO - TITE and FIBREX.

John T. Woodson

Mr. Woodson, before becoming a manufacturer's representative, was southeastern sales manager for National Cast Iron Pipe Division of James B. Clow & Sons.

Heil Sanitation Unit on Front Cover of Post

The cover of the New Year's issue of the *Saturday Evening Post* featured a painting by Stevan Dohanos depicting an early morning street scene in New York with a corps of clean-up men loading a big Heil sanitation body with confetti, streamers, and other debris that is the usual aftermath of the big night. Rosy dawn is lighting the Broadway sky as a top-hatted gent lends a hand.

The Heil Co., Milwaukee 1, Wis., points out that the prominently displayed sanitation body is one of over 750 Heil units of this type in service for the city of New York. It is a 21-cubic-yard enclosed conveyor body with Heil telescopic hoists.

Only Superior Quality

can give you Superior Performance

Superior DIESEL

HORSEPOWER RATINGS

Model	Bore & Stroke	RPM	HORSEPOWER			
			6-CYLINDER		8-CYLINDER	
			Non-Supercharged	Supercharged	Non-Supercharged	Supercharged
40	8½ x 10½	514-900	175-300	280-485	235-400	370-650
50	9 x 12	450-650	200-280	310-450	270-375	415-600
60	12 x 15	327-514	335-530	500-790	450-700	675-1055
80	14½ x 20	277-360	555-720	830-1080	740-960	1105-1440

Superior Engines
Division of

THE NATIONAL SUPPLY CO.

General Sales Offices, Springfield, Ohio

Seated at the speaker's table at the recent Diesel Engine Manufacturers Association meeting are, left to right: Robert H. Morse, Jr., vice-president, Fairbanks Morse & Company; George W. Codrington, vice-president, General Motors Corp., and general manager, Cleveland Diesel Engine Division; Charles F. Kettering, vice-president and general manager, Research Division, General Motors Corporation; E. J. Schwanhausser, vice-president, Worthington Pump & Machinery Corporation; Robert E. Friend, president, Nordberg Manufacturing Co.; Gordon Lefebvre, president, Cooper-Bessemer Corporation.

Diesel Engineers Elect Officers Hold Annual Meeting

Charles F. Kettering, general manager, Research Division, General Motors Corp., was the principal speaker before the meeting of the Diesel Engine Manufacturers Association, which was held in December in Chicago. Mr. Kettering told his audience that progress in diesel engine development, as in anything else, is made by daring to deviate from established schools of thought. Actual performance of engines occasionally crosses up the most elaborate calculations of the theorist, Mr. Kettering said.

A day-and-a-half session for the chief engineers of the association's member companies was also held. This session was opened by Mr. Schwanhausser, who introduced T. O. Kuivenen of Cooper-Bessemer Corp. as leader of a discussion on the organization of a diesel engine manufacturer's engineering department.

Harvey T. Hill, executive director, discussed a number of activities in which the association will engage during 1947. They include keeping members informed of legislation in which they will be interested; cooperation in the meeting of the Oil and Gas Power Division, American Society of Mechanical Engineers, to be held in Cleveland next May, and constructive work with colleges and universities in improving educational facilities in the diesel engine field.

The following officers were elected at this annual meeting:

E. J. Schwanhausser, vice-president of Worthington Pump & Machinery Corp., was reelected president of the association.

J. E. Peterson, vice-president of General Machinery Corp., and Gordon Lefebvre, president of Cooper-Bessemer Corp., were reelected vice-presidents. Robert H. Morse, Jr., vice-president and general sales manager of Fairbanks, Morse & Co., was again chosen to serve as treasurer.

Directors were elected as follows: William E. Corrigan, vice-president of American Locomotive Co.; George W. Codrington, vice-president of General Motors Corp., and general manager, Cleveland diesel engine division; A. W. McKinney, vice-president and general manager of sales, National Supply Co.; Robert E. Friend, president of Nordberg Mfg. Co.; Norris H. Schwenk, president of Busch-Sulzer Bros.-Diesel Engine Co., and G. F. Twist, vice-president and general manager, Atlas Imperial Diesel Engine Co.

Make Cleaning Easier

A brush for every municipal cleaning need is the way The Fuller Brush Co., Hartford, Conn., describes its diversified line of brushes and brooms.

To clean public buildings, including city halls, schools and municipal plants, the company offers fiber brooms, floor brushes, wet mops, scrub brushes, dust and bench brushes, window brushes, and miscellaneous equipment such as wall brushes and toilet brushes. One of the important items for muncipalities is street-cleaning push-brooms, which are avialable in 14- and 16-inch sizes.

More detailed literature is available from the company.

BASKETS

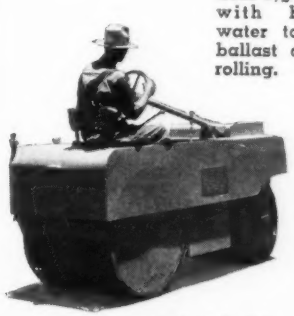
for Street and Park

Mfg. and Sold by

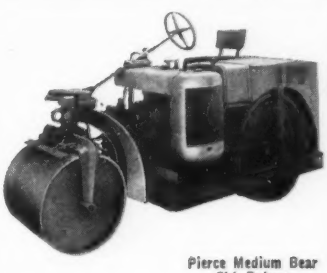
Norwich Wire Works
47 Collins Court
Norwich, New York

A Roller For Every Job

Sturdy, heavy-duty rollers, engineered to stand up under the toughest conditions. Pierce-Bear Tandem Rollers are powered by economical Allis-Chalmers 4-cylinder industrial type gasoline engines. Variable weights, from 3½ to 5 tons with built-in water tanks for ballast and wet rolling.



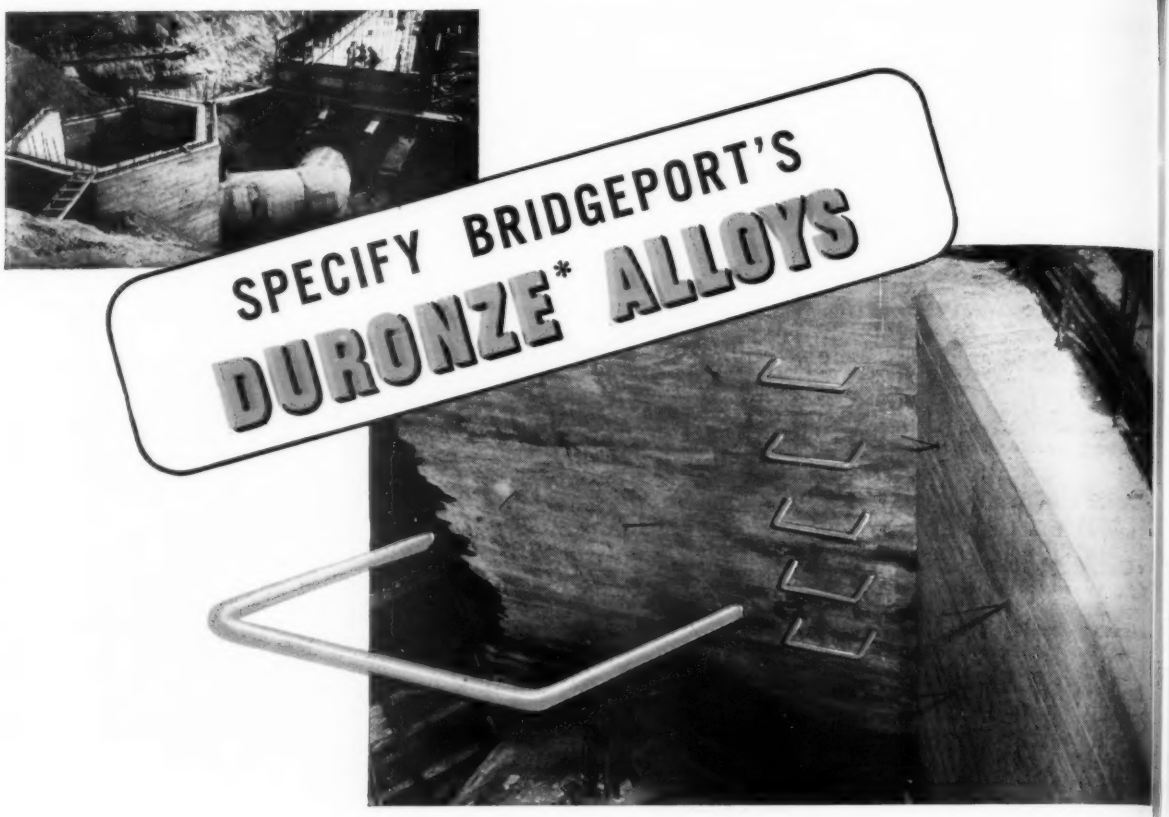
Pierce Baby Bear
2½-3 tons



Pierce Medium Bear
3½-5 tons

The new 2½-3-ton Pierce Baby Bear is designed for close-in work and small area maintenance. It works against a curb up to 25 inches high and within 1½ inches of a higher wall or building. Final drive is within the rear roll. Use Pierce-Bear Tandem Rollers for all-around performance. Write for folder.

Pierce-Bear Rollers
Lewis Manufacturing Co.
415 Hoefgen Ave.—San Antonio 6, Tex.



. . . For greater corrosion resistance

Illustrated is the control well of the sewage disposal plant under construction at Bridgeport, Connecticut, which will be capable of handling 64,000,000 gallons per day. Of course, it is important that the steps anchored in the wall of the well be made of a material capable of resisting corrosion from a continuous flow of raw sewage. Duronze III rod was specified for this application. The bends were easily made while the metal was in a red hot condition.

The dependability of pump parts, valve stems, bolts and nuts, guides and, in general, all equipment used in water works, sewerage plants and industrial waste-disposal plants, hinges upon the corrosion resistance and strength of the metals from which they are constructed. Duronze III rod for parts that are to be machined or are made by hot forging, and Duronze V (silicon bronze) for parts made by cold forming or upsetting should be specified.

Duronze III is a silicon aluminum bronze which has the remarkably high tensile strength of about 85,000 psi in its annealed condition, and about 90,000 psi in its hot forged condition, and is more corrosion and wear-resisting than most metals. It stands up very satisfactorily under corrosive conditions such as result from sludge digestion involving liberation of CO_2, methane and other gases; filtration involving acid solutions, chlorinated water, etc.

Bridgeport's Technical Handbook contains engineering data on the Duronze alloys, as well as on brass in general. Write for your copy and contact our nearest branch office for help from our Technical Service Department.

*Reg. U. S. Pat. Off.

"Bridgeport" BRIDGEPORT BRASS COMPANY
BRIDGEPORT 2, CONN. *Established 1865*

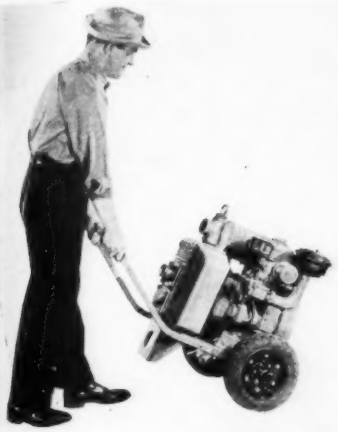
SILICON BRONZE
ALUMINUM BRONZE
BRASS · COPPER
BRONZE · DURONZE
CUPRO NICKEL
NICKEL SILVER
Rod · Strip
Wire · Tubing

Duronze Alloys—PRODUCTS OF
BRIDGEPORT BRASS

Chain Belt Introduces New Steel Pump Line

Chain Belt Co., 1600 West Bruce St., Milwaukee, Wis., announced recently the production of a new line of Rex press-formed self-priming centrifugal pumps.

Unique features of construction include a pump body which is press-formed of Armco ingot iron that is highly resistant to corrosion. Another advantage of the new design is the great saving in weight. The 2-inch size pump weighs 90 lbs. less than the former cast iron design.



The new Rex press-formed self priming centrifugal pump has many construction features unique in self priming centrifugal pump design.

The new press-formed pump body resists cracking or shattering under heavy blows or in freezing weather and can usually be repaired readily by welding. The smooth surface of the pump and press-formed volute results in a smoother flow of water through the pump because of reduced friction. A faster prime is assured by an improved method of priming.

Personnel Changes at Robinson Clay

The Robinson Clay Product Co., Akron, Ohio, manufacturer of clay sewer pipe, has made three changes in its executive personnel, according to an announcement made by W. E. Robinson, president.

S. V. Saginor

S. V. Saginor, who for the last six years has held the position of general manager of The Davey Compressor Co. of Kent, Ohio, will become vice-president and a member of the board of directors. Thomas Rockwell is retiring as vice-president and treasurer; he has been with Robinson for forty-three years. Paul V. Robinson, now secretary, assumes the position of secretary-treasurer.

Mr. Saginor joined Davey Compressor in 1939 as production manager. A year later he was named general manager, and he served in that capacity during the war years when Davey's production was tremendously increased to meet the demands of the armed forces.

Previously, Mr. Saginor had served as mechanical engineer with the Carbon Chemicals Corp. at South Charleston, W. Va., and as a power products estimator and engineer with Johns-Manville Corp. of Charleston.

Mr. Rockwell has been vice-president and treasurer of the Robinson firm for the past three years, having served as secretary of the company for the twenty-three years before that. He joined the organization as a clerk-stenographer. He has also served as a member of the board of directors and was in charge of the labor relations program.

Mr. Robinson has been secretary of the company since 1942. Before 1933, when he joined Robinson, he was with the American Chinaware Corp. of Sebring, Ohio, and Smith-Phillips China Co. of East Liverpool, Ohio. Mr. Robinson is also a director of the company.

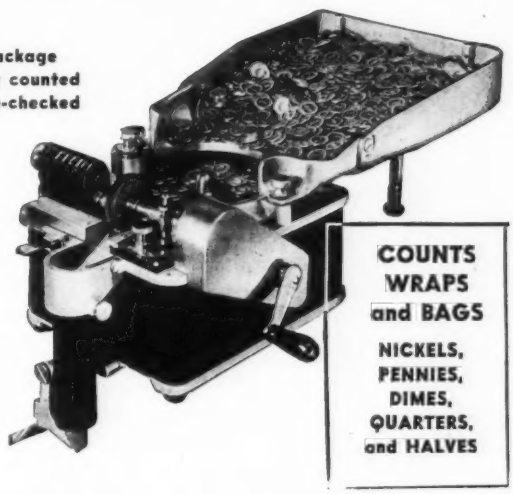
EVERY CITY

When counting PARKING METER money,
can save valuable hours
by using the portable, lightweight

DOWNEY-JOHNSON

COIN COUNTER

Every package accurately counted and double-checked



WEIGHT ONLY 17½ LBS.

COUNTS WRAPS and BAGS
NICKELS, PENNIES, DIMES, QUARTERS, and HALVES

A Practical Investment
That Pays Dividends Daily

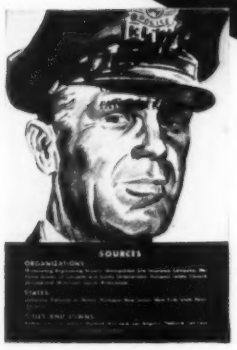
Make the counting of your parking meter collections easy with this *Downey-Johnson* Model 20 PH *Coin Counter* . . . It will count and wrap 175 rolls of coins per hour or bag 35,000 nickels per hour. This small machine saves time and labor—gains valuable hours for productive purposes—yet is priced within the reach of all. WRITE FOR CIRCULAR TODAY.

Universal Business Equipment Co.

537 So. Dearborn St. **Chicago 5, Ill.**

GOOD STREET LIGHTING

A civic benefit you can measure



For case stories on all *the benefits of good street lighting; for ideas you can use in selling traffic safety to your community, see your local electric utility, or write for "Evidence", just published by The Street & Traffic Safety Lighting Bureau, 155 E. 44th St., New York City.*

#1...in Lives Saved

WHEREVER *modern traffic safety lighting* has replaced *obsolete* or *inadequate* street lighting... the almost immediate result has been the saving of precious lives.

In *Connecticut,* for example, the proper lighting of only 27 miles of Hartford's city streets reduced night pedestrian fatalities from 32 to 1 for a three-year period. In Detroit, the results have been even more impressive. Relighting the main traffic streets reduced fatalities 70 per cent.

Wherever you look—Buffalo, Greensburg, Pa., Los Angeles, Houston—the story is much the same. All have found that good street lighting pays for itself many times over... in accidents prevented, in fatalities averted, in a safer, more livable community.

GOOD STREET LIGHTING

THE SIGN OF A GOOD PLACE TO LIVE

Duplex Fuel Oil Filters

Recognizing the importance of complete filtration of diesel fuel oils for the proper protection of diesel engine fuel injection systems, The Hilliard Corp., 102 West Fourth St., Elmira, N. Y., have added three new sizes of Hilco Hyflow duplex fuel oil filters to the Hilco line of lubricating and fuel oil filtering equipment. The size units make it possible to apply these filters to engines ranging from 200 to 10,000 hp. These duplex filters permit an uninterrupted flow of fuel to the engine; by turning the valve control handle, the flow of oil is directed from one side of the filter to the other.

One feature built into these units is the made-up type of throw-away filter cartridges with gaskets attached so there are no loose parts. The filtering material is a specially-processed cellulose of uniform density and so packed as to avoid the possibility of channeling. Filter cartridges are all metal covered in order to avoid migration of any filtering material.

Bulletin F-135 is available from the company.

The Hilco Hyflow duplex oil filter for bracket mounting to diesel engines for filtering light and heavy fuel oil.

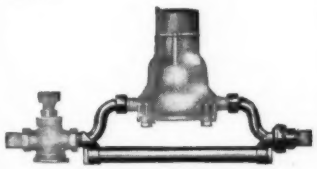
Nordberg Acquires Interest in Busch-Sulzer

Nordberg Manufacturing Co., Milwaukee, Wis., and Busch-Sulzer Bros. Diesel Engine Co., St. Louis, Mo., announced recently that Nordberg has acquired certain manufacturing assets from the Busch-Sulzer Co. and proposes to continue the latter's diesel-engine business as a division of the Nordberg Co.

Nordberg is a nationally known manufacturer of heavy machinery, including diesel engines, and Busch-Sulzer is engaged in the production of diesel engines. The Busch-Sulzer Co. was founded in 1901 by Adolphus Busch.

LINESETTER

The simplicity and low cost of ordinary meter couplings PLUS permanent connection and electrical bonding for service pipe, insuring against difficulties in meter changing and facilitating service installation.



Linesetters are made in plain and valve types.

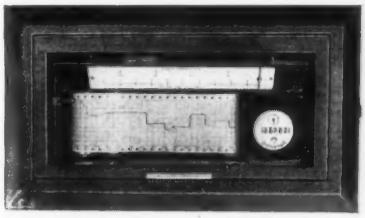
The Linesetter raises the meter only 2½" above the service line level, making it ideal for shallow outside settings and basement installations.

Catalog and complete information sent on request.

The FORD METER BOX COMPANY, INC.
Wabash, Indiana

No. 18

SPARLING MAIN-LINE METERS



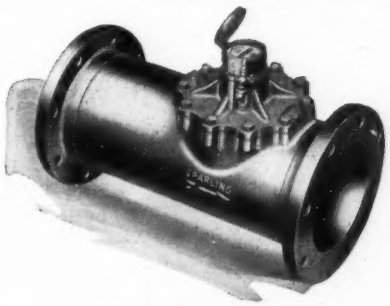
60-DAY RECORDER
Panel, Wall or Pedestal

for CONSISTENT ACCURACY in Flow Measurement

For 27 years, Sparling Main-Line Meters have given service and satisfaction in Water Works installations throughout the country.

Complete totalizing units are tube-mounted for Flanged, Bell & Spigot, and Threaded pipe; also with Saddle mountings for installation on the pipe itself.

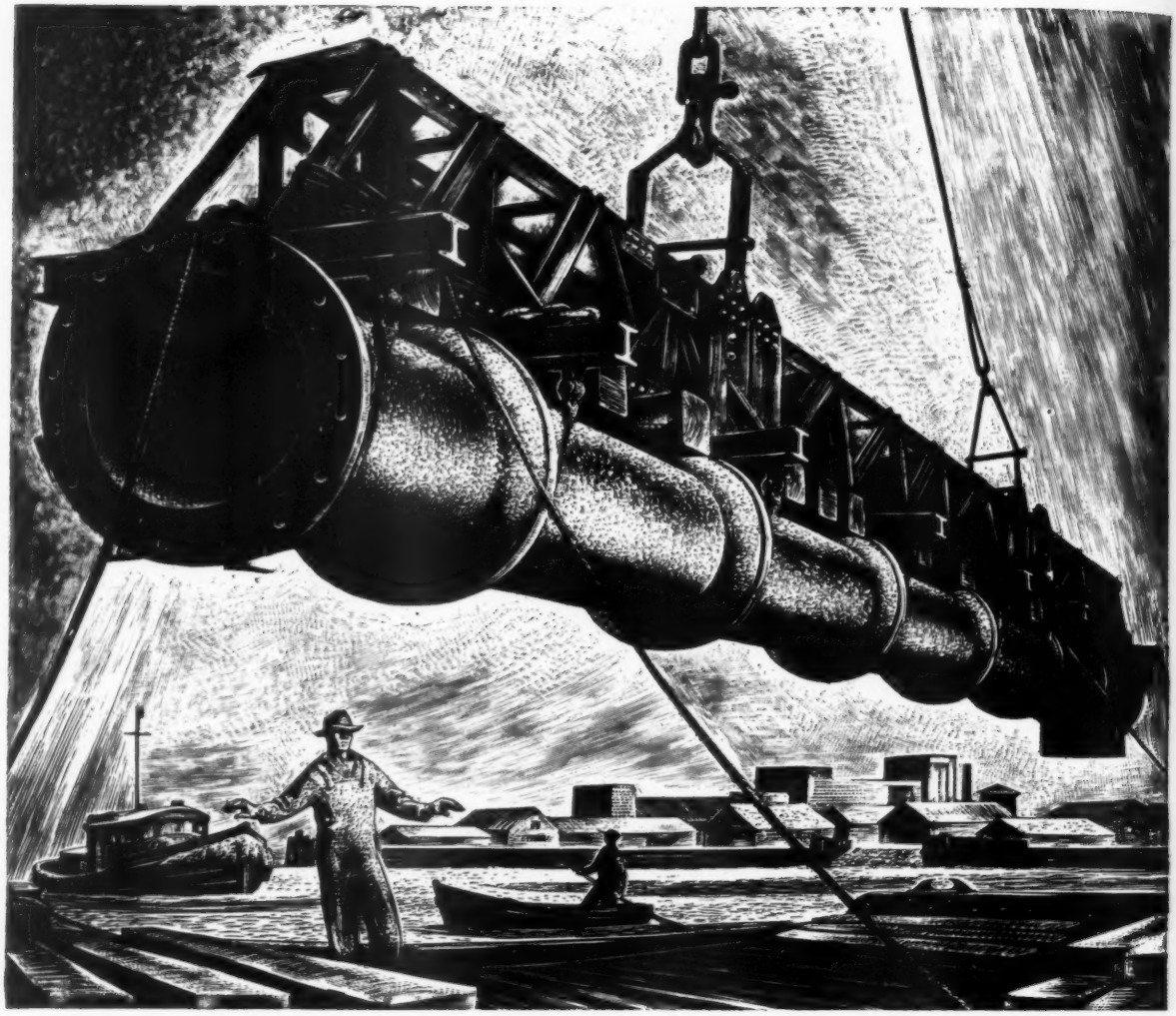
Flow Indicators and Recorders and Controls are added as desired.



Bulletin 309 comes upon request

R. W. SPARLING
Manufacturers of WATER MEASURING EQUIPMENT

LOS ANGELES 54---Box 3277 Terminal Annex 622 Broadway ----------CINCINNATI 2
CHICAGO 16--------3104 South Michigan Ave. 101 Park Avenue----------NEW YORK 17
BOSTON----------6 Beacon Street



Original Woodcut by Lynd Ward

U. S. Cast Iron Pipe is and has been widely used for river-crossing and other underwater installations. Ruggedness of design, effective resistance to corrosion and flexibility of the available joints, enable cast iron pipe to meet the exacting requirements of both installation methods and underwater service. We are in a position to draw upon a considerable fund of information acquired from many years of experience if suggestions are desired in connection with planning such installations.

U.S. cast iron PIPE

U. S. PIPE & FOUNDRY CO.
General Offices: Burlington, N. J.
Plants and Sales Offices throughout the U. S. A.

Kwik-Mix Improves End-Discharge Concrete Mixer

Kwik-Mik end-discharge concrete mixer.

An improved 3½-S Dandie end-discharge concrete mixer has just been announced by the Kwik-Mix Co.

The end-discharge feature of this mixer leaves the wheelbarrow spotting area unobstructed and eliminates turning and backing with a loaded wheelbarrow. The mixer can be approached from either side or from the end, and the end tilter trails fast because it rides on leaf springs and the wheels run on anti-friction bearings.

The air-cooled engine prevents freezing in winter and heating in summer. A big hand wheel makes it easy to tilt the loaded drum for discharge and a tow pole, pushed down and not up, moves the end tilter. This latter feature makes hand spotting easier and eliminates danger of tipping when spotting. Mixing action is thorough since four mixing blades completely cement-coat every particle of the aggregates.

Illustrated literature describing this concrete mixer is available by writing A. E. Kelbe, sales manager, Kwik-Mix Co., Port Washington, Wis.

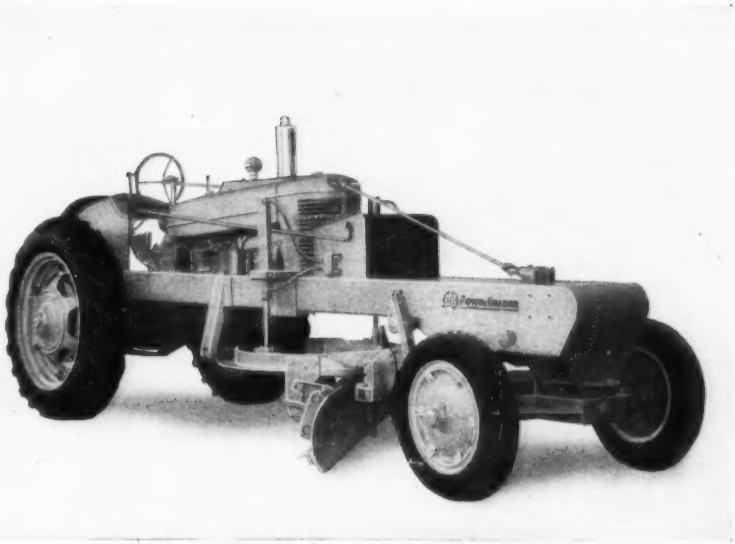
New Member for Firm of Consulting Engineers

Samuel D. Porter has become a member of the firm of Shoecraft, Drury and McNamee, 306 State Savings Bank Bldg., Ann Arbor, Mich., according to a recent announcement.

Miller Joins Koehring

J. A. ("Jack") Miller has joined the sales staff of the Koehring Co., Milwaukee, Wis., according to a recent announcement from J. F. Robbins, sales manager.

Mr. Miller, prominent in construction equipment sales in Minnesota for over twenty years, was general sales manager of the Rosholt Equipment Co., with headquarters at Minneapolis before joining Koehring. In his new position, he will work with Koehring distributors in the North Central States.



Now MB POWER GRADER

In the new M-B Power Grader, Meili-Blumberg Corporation, makers of construction and industrial equipment for the past twenty-five years, have combined many new features around International Power to give users low cost road and street maintenance and, with the full line of attachments, an all-year tool. Check these features:

1. Hydraulic power direct on moldboard gives maximum blade pressure.
2. Handles all types of maintenance fast — 2 to 16 miles per hour at low cost.
3. All blade and attachments controlled from operator's platform.
4. Worm gear center-post steering for ease of operation.
5. Big 12 x 38 low-pressure tires turn engine power into PUSH.
6. Powered by big 40 H.P. International Tractor.
7. Husky all-welded frame — resists twisting.
8. Balanced weight means easy steering, steady traction, with approximately 7500 pounds blade pressure.
9. Built rugged to do tough jobs.
10. Attachments for every job — scarifier, snow plow, bulldozer, leaning front wheels, all-weather cab.

MB MARKER

10 TIMES FASTER THAN HAND STRIPING . . . . .

Does slow, tedious hand striping make it impossible for you to keep up with today's traffic demands? Does it endanger your safety record? Then consider using M-B Street Markers. With an M-B Marker, one man stripes ten times as fast as the man marking by hand. The machine handles ALL types of striping . . . can also be used as an all-purpose paint sprayer. Requires no experience. Hand-propelled or self-propelled models.

Complete Markers for Industrial, Street and all Highway Marking jobs. Ask for Bulletin No. 121.

MB MEILI-BLUMBERG CORP.

BOX A-2, NEW HOLSTEIN, WISCONSIN

"JUST LOOK HOW TIFA DOES IT!"

. . . DEATH DEALING FOG FOR INSECTS

TIFA discharges newly developed as well as the older insecticides, fungicides, repellents or hormones of the selected particle size in a *true fog*. This fog *spreads rapidly* over a wide area, *clings* to all objects in its path and *permeates* the smallest crevices.

TIFA's compactness and ease in handling . . . a one-man unit powered by a standard-make gasoline engine . . . enable it to be used wherever control of insect pests is essential to public health and welfare . . . not only on garbage or fill dumps but in parks, resorts, swamps, and on beaches.

TIFA can be easily mounted on a small truck, or on a motor barge for clearing shore areas. It is QUICK . . . SURE . . . ECONOMICAL . . . and *built to last.*

* * *

Write for illustrated folder on sensational TIFA, highly praised by many scientists, health departments and park commissioners.

TIFA

TODD INSECTICIDAL FOG APPLICATOR

A Product of

COMBUSTION EQUIPMENT DIVISION

TODD SHIPYARDS CORPORATION

601 West 26th Street, New York 1, N. Y.

Let the Sun Turn on the Street Lights

A new development in scientific lighting control, called the Tork "astronomic dial," has been announced by the Tork Clock Co., Mt. Vernon, N. Y., manufacturers of time switches.

The Tork Astronomic Dial may be used with any standard model of Tork clock.

Clocks with these astronomic dials will automatically turn lights or other electrical equipment on at sunset and off at sunrise throughout the year without any attention. They are said to be extremely accurate and may be set to operate exactly at sunset and sunrise, or up to 40 minutes before or after. Provision also is made for them to turn off at a fixed time, if desired, anywhere between 11 p.m. and 1 a.m. The dial, equipped with a calendar wheel, shows the month and day as well as exactly when the switch will operate. Models equipped with astronomic dials operate on standard time throughout the year and are set for the exact time correction (the variation from a standard time meridian) for the city or town where used.

All standard 24-hour models of Tork clocks for lighting service may now be equipped at the factory with the new astronomic dial.

New Power Driven Burner

To answer the long felt demand for a large portable self-contained piece of equipment to provide high temperature flame, a new power burner has just been released for general sale by Aeroil Products Co., 5705 Park Ave., West New York, N. J.

This self-contained Aeroil-Schramm power burner is the result of the combined engineering and production resources of two companies. The engine and compressor unit is manufactured by Schramm, Inc., West Chester, Pa., to work in conjunction with the tank and burner equipment manufactured by the Aeroil Products Company. The result is a "packaged" machine without gears, belts or chains, self starting, and with a portable flame production.

The type of burners (two are provided) used on this unit makes it possible to work in a vertical as well as horizontal position without affecting the volume or density of the flame. The new burner requires no special fuel; it will operate on either kerosene or oil.

When necessary, this machine can be used as a "dual purpose" unit, for the 30 cubic foot displacement of air is ample to run a majority of small air tools. The skid model can be mounted on a highway truck, and with the addition of a pressure tank and spray bar can be used to spray emulsions and concrete curing materials. Municipalities will find it valuable for use in large-scale weed-eradication programs.

Aeroil-Schramm No. 646P power-driven burner operating three 4 hph torches.

PEERLESS PUMPS

PEERLESS

(FORMERLY DAYTON-DOWD)

CENTRIFUGAL PUMPS

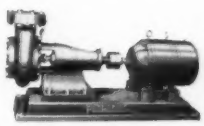
Built for Regular or Special Pumping Applications where Temperatures and Pressures are Variable, and Normal, Dense or Viscous Liquids are to be Handled. Types illustrated represent a few of scores of Peerless Centrifugal Pumps for industrial application.

Type A CENTRIFUGAL PUMPS
For General Services.
Capacities:
Up to 60,000 g. p. m.

Type B CENTRIFUGAL PUMPS
For Boiler Feed, Refinery and Pipe Line Service.
Pressures to 700 lbs.

Type AF FIRE PUMPS
(Formerly Dayton-Dowd)
Underwriters Approved.
Capacities:
Up to 2,000 g. p. m.

Type XT (VANE) PUMPS
For Butane-Propane, Processing and General Service.
Capacities:
Up to 150 g.p.m.



Type DS CENTRIFUGAL PUMPS
For Chemical, Oil, Food Processes, etc. Capacities:
Up to 600 g. p. m.

PEERLESS UTILIZES ADVANCED PRINCIPLES OF HYDRO-DYNAMICS

Peerless Horizontal Centrifugal Pumps (formerly Dayton-Dowd) are available in sizes, pressures and capacities for practically all pumping services. They are being used to most efficiently serve applications in all industries where continuous, heavy duty pump performance is required affording long-lived, trouble-free service with a minimum of maintenance.

Contact or write your nearest Peerless distributor for engineering data and full details of Peerless Centrifugal Pump advantages.

PEERLESS PUMP DIVISION

FOOD MACHINERY CORPORATION

Factories: 301 W. Avenue 26, Los Angeles 31, Calif.; Quincy, Illinois; Canton 6, Ohio

Aren't those grades a little TOO FLAT?

NO... because we're putting in TRANSITE* SEWER PIPE

Transite's exceptionally high-flow capacity (n=.010) often permits a choice of two important economies:

(1) **Flatter Grades:** This means shallower trenches and correspondingly lower excavation costs—an especially important economy when dealing with deep trenches.

(2) **Smaller Diameter Pipe:** An alternate economy which the designer may take advantage of when deep trenches are not a problem.

Savings like these are possible because Transite Sewer Pipe has an exceptionally high-flow capacity (n=.010). Composed of an intimate mixture of asbestos and cement built up on a polished steel mandrel, Transite Sewer Pipe has a smooth interior surface that offers minimum resistance to the flow of sewage.

Other money-saving Transite advantages are:

Less Infiltration—because of sleeve-type joints that *stay* tight...and long 13-foot lengths that result in fewer joints. Thus, the load on the treatment plant is reduced—treatment costs are lowered.

More Economical Installation—because Transite's light weight and long lengths make it easier to lay this pipe to line and grade.

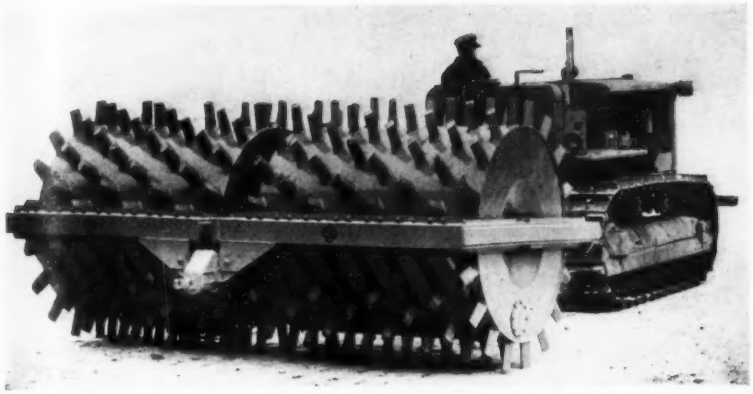
Lower Maintenance Costs—because of Transite's asbestos-cement composition that combats corrosion inside, outside, and all the way through—*plus* tight joints that prevent costly root trouble.

For all the facts, write for the Transite Sewer Pipe brochure. Address Johns-Manville, Box 290, New York 16, New York.

JOHNS-MANVILLE JM PRODUCTS

* TRANSITE is a registered Johns-Manville Trade Mark

Johns-Manville TRANSITE SEWER PIPE



This new Bros heavy-duty tamping roller for compaction requirements on earth dams, airport runways, and super highways has drums 76 inches in diameter with tapered diamond-shaped feet.

New Giant Tamper

A new heavy-duty tamping roller that produces earth compaction of more than 800 pounds per square inch was designed to meet a need emphasized by wartime neglect of highways. During the years when adequate road maintenance was deferred, it became apparent that more highly compacted and stabilized bases are necessary in road construction. The Wm. Bros Boiler and Mfg. Co., Construction Machinery Div., Minneapolis 14, Minn., designed this piece of equipment and has now placed it on the market. To meet a wide range of compaction requirements, this new tamper applies 335 pounds per square inch when empty and can be used at any weight up to the 800-pound maximum.

This new Bros tamper, called Model G-2, has been designed to meet compaction requirements of such varied jobs as earth dams, airport runways, and highways. The average pressure on each foot varies as follows: empty drums, 2,350 pounds; water filled drums, 4,000 pounds, and wet sand filled drums, 5,660 pounds.

Although this tamper exerts this terrific compaction when loaded with wet sand, it is easy to tow and has a shipping weight of only 18,800 pounds.

The oscillating type roller consists of two 76-inch drums, designed around a "full-floating" pole. This "full-floating" principle allows for full individual drum oscillation and with either angular or parallel lifting, eliminating all strains which are inherent in most designs of this type of roller. For example, one drum may float upward or downward 4 inches independently of the other one with both on a parallel plane.

Recently, it has been learned that it is more economical to over-compact than to under-compact. It is cheaper to use a roller that will more than meet the demands of specifications than one which just barely meets them.

The Bros G-2 tamper roller answers the need for a standardized piece of equipment that fills diversified job specifications.

L. O. Keener Affiliates With Clay Sewer Pipe Ass'n.

The Clay Sewer Pipe Association, Inc., 1105 Huntington Bank Bldg., Columbus, Ohio, announced the addition to its technical staff of L. O. Keener, who will represent the organization in the Commonwealth of Pennsylvania.

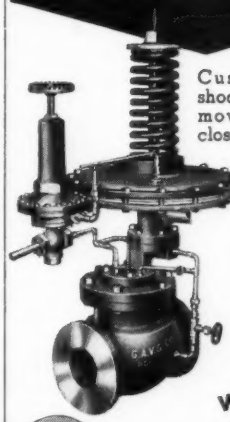
Mr. Keener formerly served as assistant superintendent of highways for Westmoreland County Commissioners, and was also associated with the Pennsylvania Department of Highways.

GOLDEN-ANDERSON

Single Acting Differential

ALTITUDE

VALVES



Cushioned against shock or jar as valve moves into open or closed positions. Needle valve control will instantly regulate speed of operation to existing pressure condition. 150 lb. to 400 lb. working pressure.

Write for Descriptive Catalog

GA

GOLDEN-ANDERSON VALVE Specialty Company

PITTSBURGH 22, PA.

L&S

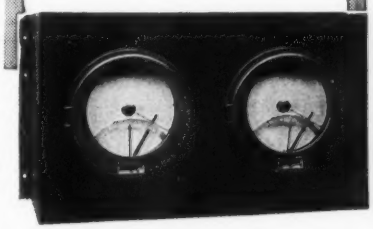
STEVENS

Type B

RECORDER

...does 3 jobs well

- *Records and indicates head or flow.*
- *Totalizes flow.*



The user list of Stevens *Type B* Recorder reads like a Blue Book. Reason—the instrument is particularly adapted to waterworks, sewerage and industrial applications—and is equally suitable to any class of recorder service.

Type B is really *triplets*. It records and indicates either head or rate of flow and registers total volume passed in any elapsed time.

Circular charts are used and may be had for daily or weekly operation.

The *Type B* is direct float operated or remotely controlled. Quality 8-day or electric clock is standard equipment. The recorder can be mounted on wall, pedestal, panel, or in sewer manhole. It can be hermetically sealed against corrosive fumes.

Want more information about this 3-way wonder? Write for Bulletin 25.

LEUPOLD & STEVENS INSTRUMENTS

Manufacturers since 1907

PORTLAND 13, OREGON

Hydrographic • Surveying • Navigation
Automatic Controls

Leupold & Stevens Instruments
4445 N. E. Glisan St., Portland 13, Oregon

Please send Bulletin No. 25 on the Stevens *Type* B Recorder.

Name _____

Organization _____

Title _____

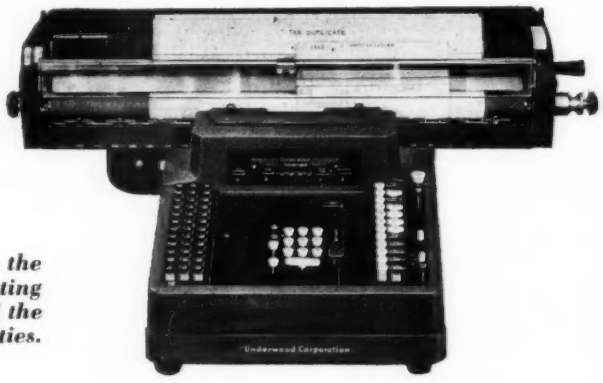
Street _____

City _____ *Zone* *State* _____

Paul G. DeMuro Director of Finance, City of Passaic, N. J. *Says—*

In selecting Sundstrand Tax Computing Machines our criterion was efficiency of basic operations in unit tax billing and accounting. The automatic computing and printing of the tax extension is an outstanding feature of the Sundstrand. The valuation is automatically multiplied by the tax rate and the amount of tax is printed automatically on both the Tax Duplicate and the Unit Tax Ledger card. The machine provides proof that all billing and posting is for the correct amount and to the correct account.

Our regular billing and the posting of receipts is being accomplished in approximately half the time formerly required and with less effort. Better service is rendered to the taxpayers through elimination of errors in billing and accounting. A more active follow-up on delinquent accounts has materially improved tax collections and has in turn been a substantial factor in improving the City's credit.



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Ask for a copy of our folder describing the new Sundstrand Automatic Tax Accounting Machine as presented at the Conference of the New Jersey State League of Municipalities. There is no obligation.

UNDERWOOD CORPORATION

Accounting Machines . . . Typewriters . . . Adding Machines . . . Ribbons, Carbon Papers and other Supplies

One Park Avenue **New York 16, N. Y.**

Sales and Service Everywhere

It Keeps the Batteries Charged

The Leece-Neville Co., Cleveland 14, Ohio, has developed a new kind of A-C generating system featuring a revolutionary application of an alternator for 6- and 12-volt service on all types of mobile equipment which require extra-high current output at low and high speeds to maintain batteries.

Need for such a system, according to the company engineers, was first voiced by police departments. The generators must deliver sufficient current to maintain batteries without frequent recharging in police cruisers carrying two-way radio, flasher lights, sirens, and other electrical accessories. The undercharging, accentuated by the cruisers' frequent use of accessories while standing still or moving at very slow speeds, caused many police departments to install freshly charged batteries every day.

This alternator is the heart of the new Leece-Neville A-C generating system which provides extra high current output at slow and fast engine speeds.

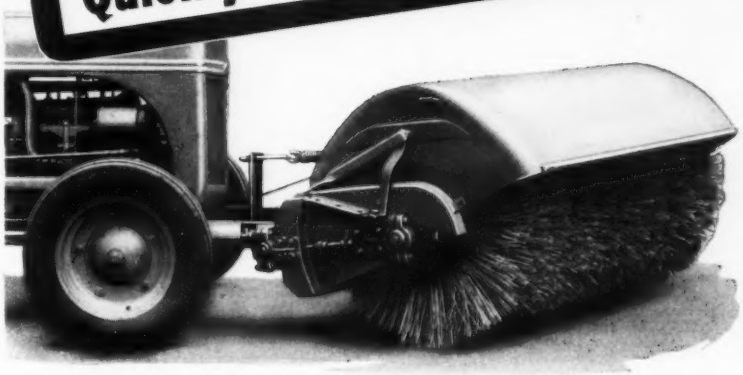
The 6-volt Leece-Neville system, originally developed to solve this problem, has proved so successful, the company reports, that it has already been adapted to fire department vehicles, where its dependability has been found indispensable in coping with hazardous emergencies.

The chief advantage claimed for the system is its ability to delivery 25- to 35-amperes at engine-idle speed and 60-amperes from twelve to fifteen miles per hour to top-car speed. This is said virtually to eliminate the need for recharging when installed in connection with a battery in A-1 condition. By keeping batteries in fully-charged condition, the systems eliminate "fade-out" and range reduction problems and tend to extend the life of radio equipment.

Consisting of alternator, voltage regulator and rectifier, the system weighs 40 pounds, which is somewhat less than conventional D-C equipment comparable output. Having no commutator or rotating armature windings, the danger of burn-out is absent.

A new booklet describing the operation of both systems in detail has just been produced and is available on request.

Remove RUBBISH and SNOW
from Your Streets, Alleys and Walks
Quickly-Easily-at Low Cost



LITTLE GIANT POWER SWEEPER

If you find hand sweeping and snow shoveling too costly and slow, but your budget does not permit extensive expenditures for mechanical equipment, then the Little Giant Sweeper will meet your requirements.

For All Tractors, Jeeps

Little Giant Sweeper mounts on all tractors and Jeeps, normally requiring less than 90 minutes to attach. Operates from power take-off. Brush sets at 30 degree angle. Sweeps to right side of tractor, outside of wheel path. Sweeps against forward motion of tractor for increased efficiency. Dependable chain drive—all moving parts are shielded for operator's protection.

Long-Wearing Brush—Dust Hood

Brush lengths of 5, 6, 7, 8 and 9 feet can be furnished. The 5-foot length is recommended for sidewalk snow sweeping. Long-wearing Palmyra fibre brush, refillable at nominal cost. Adjustable ground pressure—brush can be quickly set to fit all sweeping conditions.

Dust hood helps keep tractor clean—assures clear vision for operator. Hood can be removed in 15 minutes for sweeping snow.

Little Giant gets the sweeping job done faster. It quickly pays for itself in labor saved. The initial investment is low—very little upkeep expense. Can be used year-round—for snow in the winter and rubbish the rest of the year.

Designed by experts with years of experience in the sweeping field. Widely used by municipalities, airports, road contractors and industrial concerns.

We are in production and can make prompt delivery. Let us send you complete information and prices. Write

LITTLE GIANT PRODUCTS, INC.

1585 N. ADAMS ST.,
PEORIA 3, ILLINOIS

SORT and COUNT *Parking Meter* COINS
Quickly and Accurately

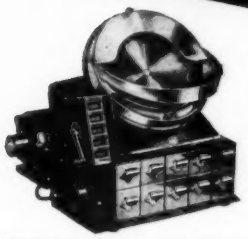
WITH

BRANDT MACHINES

The installation of parking meters brings a new problem . . . the job of sorting and counting the large volume of coins gathered therefrom.

Brandt machines will do the job with speed and accuracy . . . eliminating the drudgery, slowness and errors of hand methods.

These machines are precision built . . . the kind of equipment that meets the rigid requirements of bank usage. They carry a liberal guarantee backed by over 56 years of experience of building coin handling equipment.



BRANDT Coin Sorter and Counter . . . Simply pour mixed coins directly into the hopper . . . they come out speedily and accurately sorted and counted. Compact, portable—can be moved wherever needed.

BRANDT Coin Counter and Packager . . . Motor or Manual driven. Counts and packages all coins—pennies to dollars, inclusive—several times faster than by hand . . . without error!

To MAKE CHANGE in the TREASURER'S OFFICE use a . . .

BRANDT AUTOMATIC CASHIER

Model 201, BRANDT AUTOMATIC CASHIER Coins roll quietly on edge to delivery cup . . . chute adjustable.

One thought . . . one key! It's as simple as that with a Brandt Automatic Cashier. To make change with this machine, the key corresponding to the cents amount of the bill being paid is depressed. Mental calculations, hand selection of coins and errors are eliminated. Thus a real saving in time is effected—accuracy is assured. Brandt Automatic Cashiers are equipped with an automatic lock which prevents under payments when supply of coins runs low in any of the coin channels.

"Brandt" and "Cashier" registered in United States Patent Office and in Canadian Trade Marks Office.

Learn how Brandt machines can simplify coin handling . . . use the coupon now!

BRANDT AUTOMATIC CASHIER CO., Watertown, Wis.

Please send us information on the following:

☐ Coin Sorter and Counter ☐ Coin Counter and Packager ☐ Automatic Cashier

Name .....

Address .....

.....

BRANDT
COIN HANDLING DEVICES SINCE 1890

New G-E Hollow-shaft Vertical Motor

New G-E tri-clad vertical pump motor.

A new hollow-shaft vertical motor designed specifically for pump drives has been added by the General Electric Company to its line of Tri-Clad induction motors. Suitable for use on deep-well turbine pumps and municipal and industrial water-supply projects, the new motor is available in ratings from 1 to 500 hp.

For motors rated 10 hp to 1800 rpm and larger, the new line features a system of controlled lubrication of bearings which prevents oil-friction loss due to foaming or churning. Oil level is maintained above the top of the balls to protect bearings from rust, even during standby periods.

A large oil reservoir cast integral with the motor end shields has sufficient capacity to allow the oil to cool and recover before being recirculated. A close-running fit between the end shield and couplings prevents dirt entry to bearings and oil reservoir.

Motors 7½ hp and 1800 rpm and smaller have grease-lubricated bearings. Bearings, punchings, and windings are cooled by a double-end ventilation system which draws in air at both ends of the motor and discharges it through openings in the stator frame. A protective "self-release" coupling, keyed to the pump shaft and to the motor shaft, prevents damage to the pump or motor.

The top cap is sturdy, light, and easily removed without rigging, making the coupling conveniently accessible.

Additional information may be obtained by writing for Bulletin GEA 4645, General Electric Company, Schenectady 5, N. Y.

Clow buys Control of Iowa Valve

On January 15, 1947, James B. Clow & Sons, 201 N. Talman Ave., Chicago, Ill., purchased from the former stockholders all the capital stock of the Iowa Valve Co., 701 Hubbell Bldg., Des Moines, Iowa.

James B. Clow & Sons will continue to operate the Iowa Valve Co. as a separate corporation.

A. W. Read will continue with the company in the capacity of vice-president and general manager in charge of the plant at Oskaloosa and will be assisted by his brother, Iver Read.

J. W. Dousette will continue in the capacity of general sales manager.

W. W. Corey, former president of Iowa Valve Co., will continue to act as adviser and consultant to the new management.

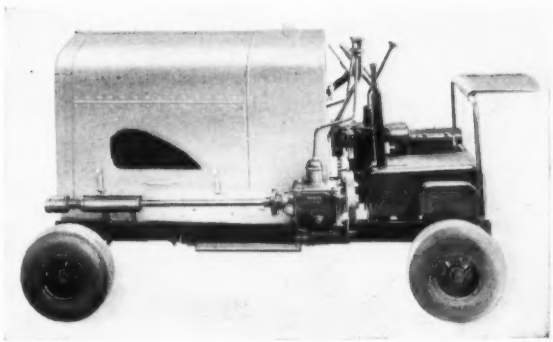
In addition to the above the following are new officers: K. S. Clow, Chicago, president; G. P. O'Day, Chicago, vice-president, and E. F. Johnson, Chicago, secretary and treasurer.

New Resident Manager for Buck, Seifert, & Jost

O'Kelly Myers, formerly Senior Division Engineer with the Board of Water Supply of New York City, is now resident manager for Buck, Seifert and Jost, consulting engineers, with headquarters in Guayaquil, Ecuador. Mr. Myers is engaged in investigations for a new water works system for Guayaquil.

Mr. Myers was on the staff of the late Nicholas S. Hill, Jr., consulting engineer, and subsequently was Senior Division Engineer on the construction of the Delaware Aqueduct for New York City.

1947 MODEL



PARTICULARLY FOR
4, 6, 8" Pipe Cleaning

Do You Need Larger Pipe?

5 YEARS AGO, THIS HAPPENED:

A resident in a city of 60,000 people told one of our men that his flushometers would no longer work and that the plumber said, "All of the people here will have to put in tank toilets as the water pressure has gone down." Our man looked at the water tower serving the section. He was told no houses had been built in ten years. The water department told him the services needed cleaning. This was done without any improvement. As a matter of advertising, we cleaned the 4" main to the 12" feeder and the owner's valves have worked perfectly ever since. However, the city did nothing and almost all other residents have been forced to put in tank toilets, a total cost of at least ten times the cost of cleaning. This city will soon be forced to clean for fire protection. Are you "Robbing Peter to Pay Paul?"

FLEXIBLE UNDERGROUND PIPE CLEANING CO.

9059 Venice Blvd., Los Angeles, California

855 Board of Trade Bldg. Chicago 4, Ill.
401 Broadway New York 13
147 Hillside Ter. Irvington, N. J.
P. O. Box 165 Atlanta
1624 Harmon Place Minneapolis 3, Minn.
29 Cerdan Ave. Roslindale 31, Mass.
P. O. Box 694 Pittsburgh
P. O. Box 447 Lancaster, Texas
41 Greenway St. Hamden, Conn.

FASTER...

. . . you'll find nothing better than the "one man crew," an Oliver "Cletrac" crawler tractor equipped with a Sargent overhead shovel.

This versatile unit speeds the tearing up and loading out of black top street surfacing, old cobblestones, or macadam. It supplies maximum traction for a powerful digging or stripping action . . . for a fast, thorough discharge into the trucks, even on slippery, muddy footing. The "one man crew" requires less operating room and far less time per trip. The unit crowds backward into the pile . . . the shovel swings overhead, while the tractor moves forward and discharges into the truck. No need here for time-wasting turns or other maneuvers that tie up traffic.

In addition to street repair work, Oliver "Cletrac" crawler tractors perform many other useful municipal tasks. They are exceptionally valuable for snow removal work, for covering city dumps, and all types of general construction work.

For all the facts, write **The OLIVER Corporation,** *Industrial Division*, 19300 Euclid Ave., Cleveland 17, Ohio, or see your local Oliver "Cletrac" dealer.

OLIVER-Cletrac

The Royer compost machine, easily operated by one man, yields a finely graded compost.

Compost Machine

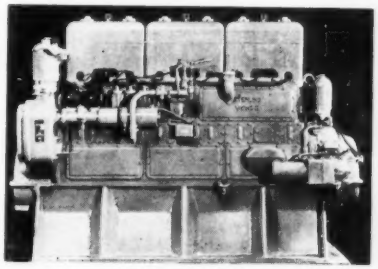
A new bulletin, No. 46, on its compost shredder-mixer has just been published and is ready for mailing upon request by Royer Foundry & Machine Co., Kingston, Pa.

This bulletin shows how the operator needs only to shovel the materials into the hopper, thus demonstrating that one man with this rugged machine is able to prepare more and better compost than a man using hand-mixing methods. The Royer is said to improve greatly the quality of compost by thoroughly shredding, aerating, and mixing the materials, and reducing the mixture to a size that most readily yields the nutritive elements to plant growth.

Various applications of the Royer are illustrated—notably at parks, golf courses, and cemeteries for preparing compost; by florists, nurseries, and growers for preparing stimulating soils and fertilizers; and at schools for mixing materials for walks.

Sterling Engines for China Water Works

The Sterling Engine Co., Buffalo, N. Y., has received orders for twenty-four engines for rehabilitation work in China under the UNRRA program. Seventeen of the engines are six-cylinder Sterling Vikings, having an 8-inch bore and 9-inch stroke. Seven are six-cylinder Sterling Petrels, with a 5¼-inch bore and 6-inch stroke.

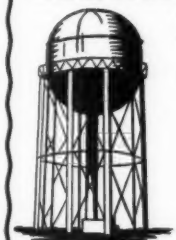


Seventeen of these six-cylinder Sterling Viking engines will be delivered to China under the UNRRA program.

These engines, used throughout the United States for a multitude of power purposes, will be used in China to operate water pumps built by Buffalo Pumps, Inc., Buffalo, N. Y. The Viking engines will drive pumps delivering 2,500 to 3,500 gpm against a 200-foot head, or at a pressure equivalent to 86.6 lbs. per square inch. The Petrel engines will deliver 1,800 gallons per minute against a 270-foot head, or at a pressure equivalent to 116.8 lbs. per square inch.

Reconstruction of water supply systems is expected to help alleviate famine and disease in China.

ELEVATED WATER TANK PAINTING



We are industrial painters specializing in Steel Elevated Water Tank Cleaning and Painting, endorsed by National and State authorities, factory and municipal engineers.

- **Reasonable prices** • **Full insurance**
- **Inspections and quotations free**
- **Write for our representative today**
- **No obligation.**

We paint Gas Holders, Warehouses, Smoke Stacks, Mills, Factories; and also repair Brick or Concrete Chimneys.

UNIVERSAL CONSTRUCTION COMPANY

1158 W. 34th St., Indianapolis 8, Ind. P. O. Box 1492, Birmingham, Ala.

Locate Underground Leaks

without any digging . . .

with a

GEOPHONE

(Reg. U. S. Pat. Off.)

The original leak locator of the Geophone type

Placed in contact with earth, the GEOPHONE accurately detects, by sound, the position of leaks in underground water or steam pipes.

Leaks are too costly to be ignored. A pin-point size leak wastes 65,000 gallons of water annually!

A GEOPHONE saves the cost of locating leaks—saves the costs of surveys, excavating, replacing. A big paying investment for water, sewerage and Public Works Departments; for any plant with underground water or steam pipes.

Outfit complete with two GEOPHONES, connecing tubes, earphones, in heavy leather carrying case with shoulder straps. **...$75**

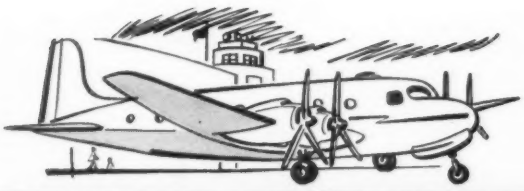
Pipe Finders, $100.00; Dipping Needles, $18.50; Pipe Phones, $3.70.

Write at once to

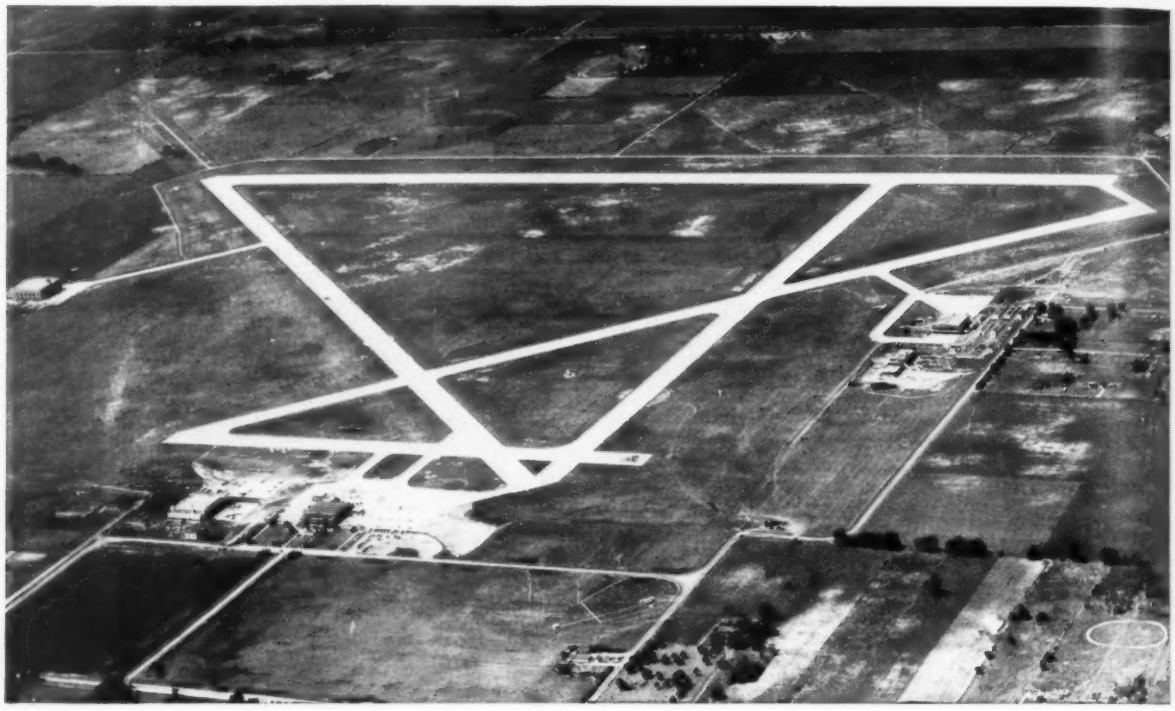
Globe Phone Mfg. Corp.

Dept. A., Reading, Mass.

Manufacturers of the Geophone Since 1918



WEIR Cook Municipal Airport at Indianapolis has more than 312,000 square yards of portland cement concrete in runways, taxiways, aprons and parking areas. Even the oldest sections, built in 1930-31, are still in excellent condition and have required little maintenance.



Evidence of the Economy and Long Life of CONCRETE AIRPORT PAVING

THE original concrete runways, aprons and taxiways built at the Weir Cook Municipal Airport in Indianapolis in 1930-31 are still structurally sound—have required only negligible expense for maintenance during more than 15 years of service. Since the building of this original concrete pavement, comprising more than 40 per cent of the airport's present concrete yardage, traffic at the airport has increased tremendously and average weight of planes has multiplied many times.

Concrete pavement can be accurately designed to have the structural strength required for any loading, thus eliminating wasteful overdesign or costly failures due to under-design.

Concrete's low first cost, plus low maintenance expense and long service life, adds up to *low annual cost*, the true measure of pavement economy.

In addition to its economic advantages, concrete airport pavement offers good visibility, high skid resistance, rapid drainage, low tractive resistance and freedom from loose particles.

Our experienced engineers will gladly assist your engineers to get the many advantages concrete offers for airport paving or buildings.

PORTLAND CEMENT ASSOCIATION

DEPT. A2-4, 33 W. GRAND AVE., CHICAGO 10, ILLINOIS

A national organization to improve and extend the uses of concrete . . . through scientific research and engineering field work

Dresser Appoints New Representatives

The appointment of two new manufacturer's representatives for the Southeastern states has been announced by H. Z. Hight, sales manager of the Dresser Mfg. Division, Bradford, Pa.

Jack P. Orr will handle the distribution of Dresser pipe line products in Kentucky, Western Tennessee, Northern Mississippi, Arkansas, and Missouri. Preston A. Avery will be the Dresser representative in North and South Carolina, Georgia, Florida, Alabama, Southern Mississippi, and Eastern Tennessee.

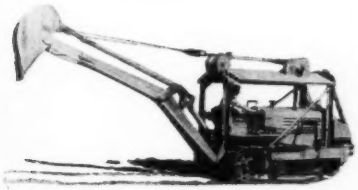
Both Orr and Avery have been active in the water works field for a number of years, representing some of the largest companies.

R. S. Scott, Dresser's water works engineer, will continue his activities for the organization, and is available for consultation and discussion upon request.

H. E. Beane Appointed General Sales Manager

H. E. Beane, who started with the Bristol Co., Waterbury, Conn., as a sales engineer in 1920, has been appointed general sales manager of the organization, effective as of January 2. Mr. Beane had been with Bristol five years when he was promoted to the position of district manager of various branch offices of the company. In 1936, he became field sales manager, and seven years later Mr. Beane became sales manager.

New Tractor Backhoe for Trench-Digging



The Sargent Backhoe, consisting of a permanent tractor hook-up attachment plus a boom and special ditch-digging bucket, which substitute for the regular shovel arms and bucket of the Sargent Overhead Shovel.

Maine Steel, Inc., manufacturers of the Sargent Overhead Shovel, announces the addition of a backhoe attachment to be used on crawler tractors in conjunction with the Sargent Overhead. This is said to be the first time any manufacturer has offered a backhoe to be used with a crawler tractor.

The Backhoe consists of a permanent tractor hook-up attachment plus a boom and special ditch-digging bucket which substitute for the regular equipment of the Overhead Shovel.

The permanent tractor attachment, which weighs 165 pounds, can be attached by one man in one hour. Since it does not interfere with the use of the tractor for other purposes, it has to be put on only once.

The Backhoe boom and bucket, weighing 1,435 pounds for the Model B, can be attached in one hour and can be detached in about ten minutes.

The Backhoe bucket is equipped with an automatic bucket cleaner that cleans the bucket at every dumping. This makes it easy to handle wet, clinging clay; and it speeds up the operation of trenching. Dumping can be accomplished either manually or automatically.

Maximum digging depth of the Sargent backhoe is between 7 feet and 8 feet, depending upon type of material. Tests prove that under average conditions the Sargent backhoe will dig a trench 5 feet deep in gravel or loam at the rate of 135 feet per hour. Under very bad conditions, in wet blue clay, the Sargent backhoe will dig a trench 6½ feet deep at the rate of 60 feet per hour.

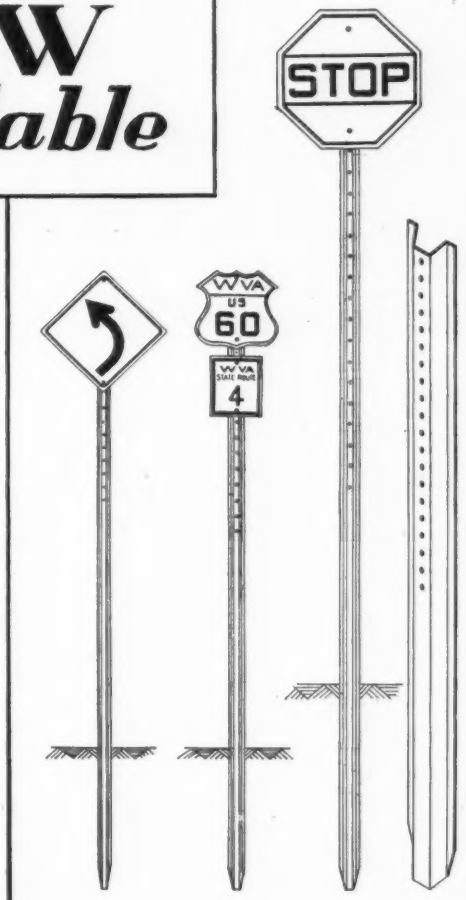
At the present time, the Sargent backhoe is available in two sizes, Model B and Model D, to fit Cletrac tractors.

For complete information write to Maine Steel, Inc., South Windham, Maine, and folder 430 will be forwarded to you.

NOW *available*

SIGN POSTS!

ROUTE MARKER POSTS!



Good signs should have good supports. HUNT Sign Posts are of consistently high quality—manufactured of rail steel for high tensile strength and finished with a glossy weather-resisting baked-on green enamel.

Also available are a complete line of standard Stop, Warning and Reflectorized signs; also Street-Name and Portable Warning signs.

Write for Catalog and Prices, to Steel Products Division

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Established 1920

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Embossed signs on Bonderized metal are permanent. Miro-Flex is NOW in position to supply the complete line, either plain, embossed or reflectorized.

Send for catalog of stock signs, including the two way and four way street signs.

247

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MIRO-FLEX COMPANY

1824 EAST SECOND STREET · WICHITA, KANSAS

DELIVERY ON TIME IF ORDERED IN TIME

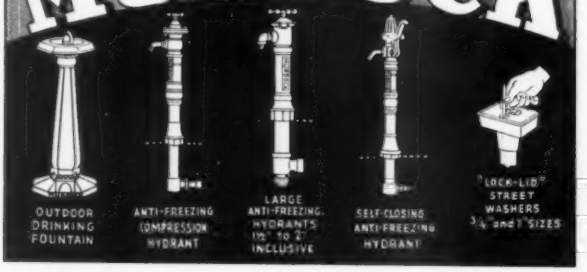
Co-op with us and we'll gladly co-op with you.

Anticipate your requirements—place orders now for Murdock Outdoor Drinking Fountains, Hydrants and Street Washers and we'll put forth every effort to meet delivery dates.

"It Pays to Buy MURDOCK."

The Murdock Mfg. & Sup. Co.
426 Plum St. Cincinnati 2, Ohio

MURDOCK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There is a right and a wrong way to plan your house numbering program. Premax Stamped and Embossed Metal Numbers provide the necessary legibility.

Premax Products

Division of Chisholm-Ryder Co., Inc. 1836 HIGHLAND AVE., NIAGARA FALLS

In the numerous housing projects recently inaugurated in various parts of the country, Crawler tractors (the International TD-14 Diesel crawler is shown above) and bulldozers are doing a quick, low-cost, labor-saving job in laying out streets, grading lots, and digging ditches and basements. The tractor with Bucyrus-Erie bullgrader and Heil double-drum winch (used with 6-yard wheel scraper) is shown laying out streets for the Pine Forest Colored Subdivision, a 48-lot project on the outskirts of Jacksonville, Fla.

New Small Tournapull

R. G. LeTourneau, Inc., Peoria, Ill., has added a new small Tournapull for high-speed dirt-moving to its line of rubber-tired earth-moving and construction equipment. Built to answer the need for a small high-speed scraper unit especially suited for municipal use, the Model D Tournapull features new developments in design engineered for heavy as well as light construction work.

Powered by an 85 hp gasoline engine, this prime mover is equipped with the new E-4 Carryall Scraper, having a load limit of 4 tons and a truck capacity of 3.3 yards. The unit is self-loading, has 4 speeds forward, 4 reverse, and travels up to 23 miles per hour.

The Model D Tournapull for high-speed dirt-moving.

One of the outstanding features of this Tournapull is the new electric control by individual electric motors, replacing tractor steering and gear shift levers and eliminating the need of a power control unit for scraper operation.

The D Tournapull has a new type of differential which keeps both wheels pulling at all times by supplying the most power to the wheel on firmest footing, so that on slippery ground neither wheel will spin independently of the other. Air brakes add to safe operation.

Ability to turn on a 25-foot fill and to turn in its own length (22′ 5″) from a full stop makes this small, fast rig extremely maneuverable.

The overall dimensions of the Model D Tournapull earth-mover are: length, 22 feet 5 inches; height, 7 feet 1 inch; wheelbase, 13 feet 2 inches; width of cutting edge, 6 feet; weight when empty, 7½ tons.

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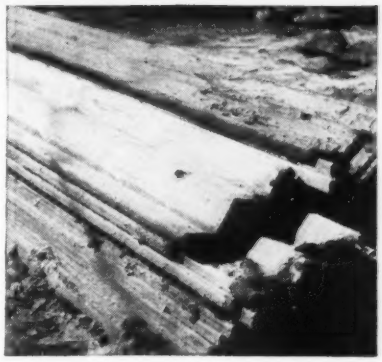

This is how engineers cut costs and speeded the trenching work on an extensive sewer construction program. They specified ARMCO Steel Sheeting and reused it more than 100 times.

The small displacement area of ARMCO Sheeting makes it easy to drive — easy to pull. Corrugated design assures ample strength yet keeps weight down to facilitate handling and speed installation. In driving, sections butt together or are held securely in place by continuous interlocking joints that assure correct alignment and practical water-tightness.

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WERE USED BY 14,000,000 VOTERS AT THE NOVEMBER, 1946 ELECTIONS

Among the 3,500 Progressive Cities and Towns Using Automatic Voting Machines are:

New York City	Scranton	Pittsfield	Oshkosh
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If Your Community Is Interested in a More Efficient and Less Expensive Voting System—Write

AUTOMATIC VOTING MACHINE CORPORATION
JAMESTOWN 55, NEW YORK

Improved Smith-Mobile Models

Improvements in the design and construction of Smith-Mobile truck mixers are announced by The T. L. Smith Co., Milwaukee, Wis., concrete mixer manufacturers and originators of the high-discharge type of truck mixer.

The new Smith-Mobiles will have larger drums with increased capacities and will include such refinements as a selective dual water-injection system for job mixing or mixing in transit; an enclosed water-pump valve and piping within the motor housing to afford complete protection in cold weather; a syphon-type water tank equipped with a single lever-operated, poppet-type, three-way valve; a self-adjusting metal sealing door; improved three-point suspended transmission assembly with rubber mounting for bearing and gear case; a timken-bearing-equipped front drum support; quickly accessible clutches and complete streamlined enclosure.

Although these improved Smith-Mobiles have larger drums and thicker drum shell and blades, improved design and styling have made it possible to lower the weight per cubic foot of drum volume. Four sizes will be available: 2-, 3-, 4½-, and 5½-yard truck mixers; 3-, 4¼-, 6⅛-, and 7⅜-yard agitators.

● In the large cities where purchasing has been based on value and economy, American or Niagara Meters have been ordered year after year as needs have expanded. Large numbers are used in many progressive cities including Buffalo, Cleveland, Washington, Toledo, Milwaukee, Niagara Falls, Philadelphia, and many others. No inducement other than quality and moderate price has contributed to this loyalty.

A complete range of disc meter sizes is available to meter large or small flow. Small communities, too, have found the Buffalo Meter the best investment.

Send for our impressive list of extra advantages that you will realize through Buffalo Meters.

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WATER METERS
BUFFALO METER COMPANY
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KARPARK *is in demand*

by cities everywhere

• Dependability is the decisive reason why so many cities are choosing KARPARK. Even with greatly increased production, quick delivery is a problem. But high manufacturing standards —no substitute materials—assure a certainty of performance that justifies a wait.

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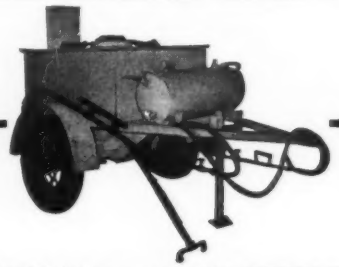
THE WISE CHOICE

KARPARK *Automatics*

KARPARK CORPORATION, CINCINNATI 6, OHIO



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Fire Proof—Oil Burning

Hand and Motor driven spray.
Many sizes. Write for catalog.

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INDUSTRIAL • MUNICIPAL • HIGHWAY

No Guesswork • No Valuable Loss of Time

"Redi-Mix" is ready to use in all types of traffic line markers as it comes in the container. It will not "pick-up" 20 minutes after application, in warm weather. Comparative tests justify the remarkable resistance of this traffic paint to abusive weather and traffic conditions.

Available in White or Yellow colors.
No delay in deliveries.

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MARTIN CARRYHAUL TRAILERS
"Make Hauling A Pleasure!"

Ease of loading, dependability and economical operation are three Martin CARRYHAUL Trailer characteristics which make them the leaders in the field.
Regardless of your hauling job, there's a proper size Martin CARRYHAUL Trailer to do it for you safely and economically.

Your "CATERPILLAR" Dealer is your MARTIN Dealer. See him for your trailer needs.

MARTIN MACHINE COMPANY
KEWANEE, ILLINOIS

McCulloch Motors Moves Plant to Los Angeles

The move of a major industry from one section of the country to another was officially completed in December 1946, when Robert P. McCulloch, president of McCulloch Motors Corp., 6101 West Century Blvd., Los Angeles 45, Calif., announced the beginning of mass-production of gasoline engines in a new plant. The company was originally established in Milwaukee, Wis., as McCulloch Aviation, Inc., and began its move to the west coast in January 1946. The name was changed in October to indicate the present wider scope of the company's products.

The new plant, which cost approximately $1,600,000 to build and equip, has a capacity production of more than one engine a minute. Production scheduled for the month of January was 4,300 engines, with increases planned during successive months until capacity production is reached.

The first engines to be produced in volume are the Series 1200, of which there are at present four models, ranging from 2½ to 4 hp. This series of engines is the 2-cycle, air-cooled type and incorporates advanced features never before available in a mass-produced American 2-cycle engine, the company states.

Also in production in lesser quantities are the Series 4300. These are opposed-type, 2-cycle engines designed to develop extremely high horse-power per pound for use in target aircraft.

Development and experimental programs on other types of engines up to 125 hp is being carried on concurrently with the production of standard models in the new plant.

The company's facilities for carrying out experimental engine test projects are housed in a separate building of the new plant, with special equipment and engineering personnel for mechanical analyses. The chemical laboratories are in the main building, adjacent to the engineering department. The new plant will not only permit increased production, but will encourage greater experimental work in the new fields undertaken.

Riegelmeier Establishes Traffic Service Co.

Ray F. Riegelmeier, formerly traffic engineer for the Prismo Safety Corp., Huntingdon, Pa., has opened his own organization of traffic services. Operating in the central and eastern regions of Pennsylvania, Mr. Riegelmeier will encompass municipal traffic engineering services and will also represent a number of firms offering traffic equipment and materials.

Mr. Riegelmeier's previous experience included the position of maintenance engineer for the bureau of traffic planning in Pittsburgh.

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NICHOLS ENGINEERING & RESEARCH CORPORATION

60 WALL TOWER NEW YORK, N. Y.

Consultants • Designers • Constructors

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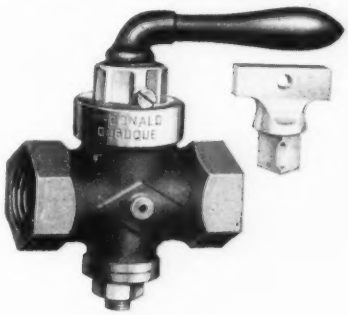

with the Diamond Line . . .

Yes, 91 years of setting the pace in quality waterworks goods is a reputation we're proud of here at McDonald's. It's a reputation based upon skillful craftsmanship, precision engineering and a high standard of performance. Illustrated is one of the items in McDonald's Diamond Line—Plate E-2832, Patent Cap Stop and Drain. Flat way, high pressure with malleable tee or lever handle, right or left. Can also be furnished in a stop pattern. Write for information on this and other items available.

EST. 1856 McDonald

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DUBUQUE, IOWA
BRASS GOODS • PUMPS • OIL EQUIPMENT

FLINK SELF FEEDING SPREADER

Faster-Safer-Cab-Controlled!

- Enables you to get icy spots covered faster
- Speed to danger spots, start spreading without stopping truck
- Finish spreading—speed on to next spot without stopping truck
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- Spreads all granular materials up to 1", wet or dry
- Spreads forward or backward—full or half width of street
- Does not limit use of truck—won't interfere with dumping
- Attaches to truck as a tailgate, off in 5 min.

Write for literature or name of distributor near you.

Flink Spreader with safety protective housing over spreader blades and clutch. Hydraulic drive and rear wheel chain drive models

Sand-Chip Attachment

The ideal machine for seal coating, road re-surfacing, dust control. Trouble-free, no working parts to attachment.

THE FLINK COMPANY, Dept. 671, Streator, Ill.

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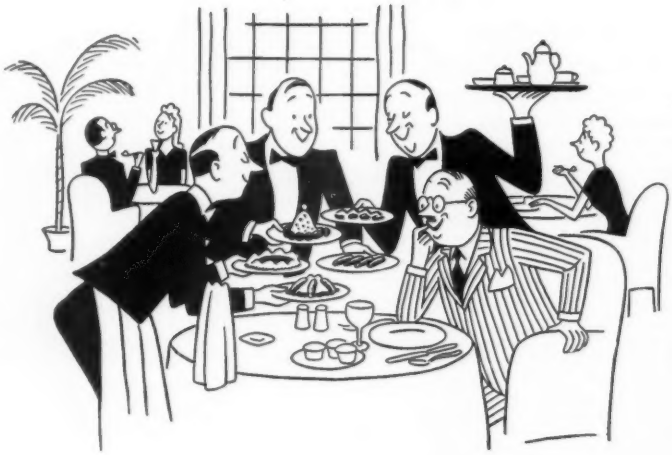

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At moderate rates.

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Left to Right: Front Row: R. E. McDonnell, C. A. Smith; Back Row: C. K. Mathews, E. J. Thomson, R. H. McDonnel, A. F. Hartung, R. G. Kincaid, R. L. Baldwin.

Burns & McDonnell Expand

Burns & McDonnell Engineering Co., 107 West Linwood Blvd., Kansas City 2, Mo., has enlarged its firm membership from the present four members—R. E. McDonnell, C. A. Smith, R. L. Baldwin and R. H. McDonnell—to eight, selected from the senior associate engineers. These are:

Arthur F. Hartung, electrical engineer, graduate of the University of Kansas, member of the American Institute of Electrical Engineers. He spent three years with General Electric Company, came to Burns & McDonnell eighteen years ago, and specializes in electrical and power design.

Russell G. Kincaid, civil and hydraulic engineer, graduate of the University of Missouri, member of the American Society of Civil Engineers, American Water Works Association, and National Society of Professional Engineers, has been with the firm for twenty years and specializes in hydraulic work.

C. Kelsey Mathews, civil engineer, graduate of University of Kansas, instructor in civil engineering for three years at the University of Illinois, member of the American Society of Civil Engineers and American Water Works Association, entered the firm twenty-four years ago and specializes in appraisals and sanitary work.

Earl J. Thomson, electrical engineer, graduate of Manitoba and Marquette universities, and member of the American Society of Civil Engineers, served four years as acting and assistant city engineer at Moose Jaw, Sask., Canada. He came to the firm eleven years ago and specializes in water works, sewage treatment, and power plants.

On January 1, 1946, the firm adopted a policy of profit-sharing with their seventy-five employes on a basis of salary and seniority. Burns & McDonnell Engineering Co., in its forty-ninth year of consulting engineering work, hopes to celebrate its fiftieth year in its new air-conditioned building.

Sheffield on OCIA Committee

E. K. Sheffield, president of National Clay Pipe Manufacturers, Inc., Chicago, Ill., and of The Logan Clay Products Co. at Logan, Ohio, has been appointed to a special committee of the Ohio Ceramics Industries Ass'n., created to improve the building facilities and equipment of the Department of Ceramic Engineering of Ohio State University.

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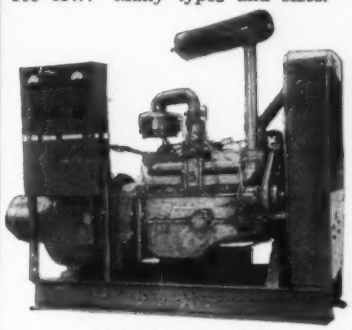
When power goes off, and *where power lines fail to reach,* use KATOLIGHT.
Use it for *emergency lighting.*
Use it as either *emergency or constant source of power* for operating compressors, drills, etc.
KATOLIGHT is a standby necessity for *police, fire, park* and *public works departments.*
Portable & Stationary. 500 watt to 100 KW. Many types and sizes.



Write for Booklet

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MANKATO, MINN.

CEMENT GUN COMPANY
"GUNITE" CONTRACTORS
GENERAL OFFICES—ALLENTOWN, PENNA., U.S.A.

"GUNITE SAVES FOUNDATIONS

The "before" and "after" photos show two of three water standpipe foundations which we restored in 1944 for the Village of Carthage, N. Y.

These foundations were very seriously disintegrated and in dangerous condition. All loose and deteriorated concrete was chipped away and mesh reinforced "GUNITE" placed 3" to 12" thick to restore the foundations to original dimensions. Extreme care was taken to place "GUNITE" well under the bearing edge of the standpipe.

This work was done under the supervision of Mr. J. Lamprecht, Consulting Engineer, Fayetteville, N. Y.

Our 72-page bulletin D2300 describes scores of uses of "GUNITE." Write for your copy.

MANUFACTURERS OF THE "CEMENT GUN"

The Trucks Are Coming

In commemoration of its fortieth year as a truck manufacturer, International Harvester gave the first showing of its new models at a company and press conference held January 17 in Fort Wayne, Ind.

During forty years of truck manufacture, International Harvester has built 1,298,576 trucks, including approximately 100,000 heavy-duty military combat vehicles, in its United States factories. Of the vehicles produced for civilian use, approximately 13% have been sold in foreign countries other than Canada. At present, more than 600,000 Internationals are still in commercial service in the United States alone. This seemed to the management and friends of the company to merit the celebration.

It started at 9:15 A.M. with a welcome from W. K. Perkins, manager of sales, Motor Truck Division, who reviewed the forty-year history of the company.

The 1907 IHC auto wagon, forerunner of today's complete line of International trucks, was a high-wheeled, low-powered unit designed to carry the farmer, with his family and his produce, over the rutted mud roads of the period. Those early International Harvester auto buggies and auto wagons proved well adapted, not only to the farmer's needs but to urban transportation requirements as well. In 1915, the low-wheeled truck superseded the high-wheeler, and both water and air-cooled engines were supplied. The

International Harvester Truck, Model KB-7; 134-inch wheelbase chassis with three-way hoist, and round front end three-cubic yard dump body.

wooden, artillery-type wheels were equipped with the wider, solid tires required to carry the greater weight of the loaded vehicle. One of these vehicles, on June 14, 1916, was the first truck to climb famed Pike's Peak.

By World War I America had begun to pull itself out of the mud. Federal, state, and county governments sponsored and financed "better roads" programs. During the past three decades the motor truck has been one of the most potent factors in the development of the country.

Realizing that no product is any better than the service behind it, Harvester began providing nation-wide service to International truck owners. Today it has 167 company-owned branches and service stations, each with modern servicing facilities and large stocks of replacement parts.

The difficult war period taught truck operators that there is no substitute for ample power—power enough to do the job at hand and do it well and economically. Therefore, as International Harvester sees it, the trend will be toward higher compression engines and toward a higher ratio of engine horsepower to gross vehicle weight, resulting in far better performance and longer engine life.

A feature of the Fort Wayne meeting was a preview of the new line of motor trucks, including the recently introduced "Western" models. "Throughout our new truck line," said W. K. Perkins, "in addition to the new styling, are ninety-five new feature or mechanical improvements. These new models were put on our assembly lines without any interruptions in production. Trucks are too badly needed to stop production for a single minute. There are 21 basic models in the International truck line—15 'KB' models and 6 'W' or 'Western' models. The gross vehicle weight ratings of these 21 models range from 4,400 to 90,000 pounds. Notice that I said 'basic models', because job adaptations and conversions of the 21 models produce more than 1,000 different transport units, all of which might be called models. It may be truthfully said that in the International line today there are more than 1,000 different vehicles.

Perkins then told of the thirteen different engines which power International's twenty-one basic models, and pointed out that the piston displacements of these engines range from 213 to 1,090 cubic inches, and that options include provision for both diesel and butane fuels in the heavier truck models.

Styling of these models is an innovation in the truck field. The sweeping lines of hood, chrome radiator grille, and fenders; lavish use of chromium trim; fender-mounted headlights; gracefully curving skirted fenders; maximum engine accessibility—all contribute to distinctiveness.

Of outstanding importance is the all-steel cab, a "driver's" cab with easy riding and comfort qualities. Seat and back cushions are quickly adjustable. One-piece windshield and narrow corner posts provide maximum visibility.

Another innovation is the price policy. For many years it was the custom in the motor truck industry to quote prices on the basis of "standard" models with minimum equipment, which kept the quoted prices lower. In actual practice, however, truck customers required many adaptations of equipment in order to fit a particular model to the use they had in mind. Delivered prices, for that reason, often were very different from the so-called "standard" prices.

Recently, the industry has begun to abandon the old system of prices based on models with minimum equipment. This is especially true of the medium and heavy types of trucks, which are the models in which the greatest variation in equipment takes place.

Price adjustments will range from 2% to a little more than 10%, depending on the model, and will result, over-all, in an average increase of about 5%. The new system of pricing can be illustrated by three specific examples.

The price of the former medium duty K-5 model, with 6.50 x 20 tires, was $1,088.50. The corresponding new model with 6.50 x 20 tires as standard equipment will sell for $1,130, or an increase of $41.50. Most of the former K-5 models, however, were sold equipped with Budd wheels and two-speed axles. The new model, thus equipped, will sell for only 1% more than the former model.

The base price of the former heavy-duty four-wheel K-8 model was $2,500. But most trucks of this model were sold equipped with the 361-cubic-inch engine and with 9.00 x 20 or larger tires. With this equipment, the old model sold for $2,810. The price of the new truck will be $3,150, including engine and tires as standard equipment. This is an upward adjustment of $340, but included in the new price are improved front and rear axles, wider base rims, and other improvements.

The base price of the former heavy-duty six-wheel KR-11 model was $4,970. But a majority of these models had to be equipped with the following items, needed for proper operation: Timken axle, $380; engine and transmission, $185, and 10.00 x 20 tires, $66. So equipped, the old model sold for $5,601. The new model will be already equipped with the foregoing items and sell for $5,500. This is a *reduction* of $101.

The American City Professional Service Directory

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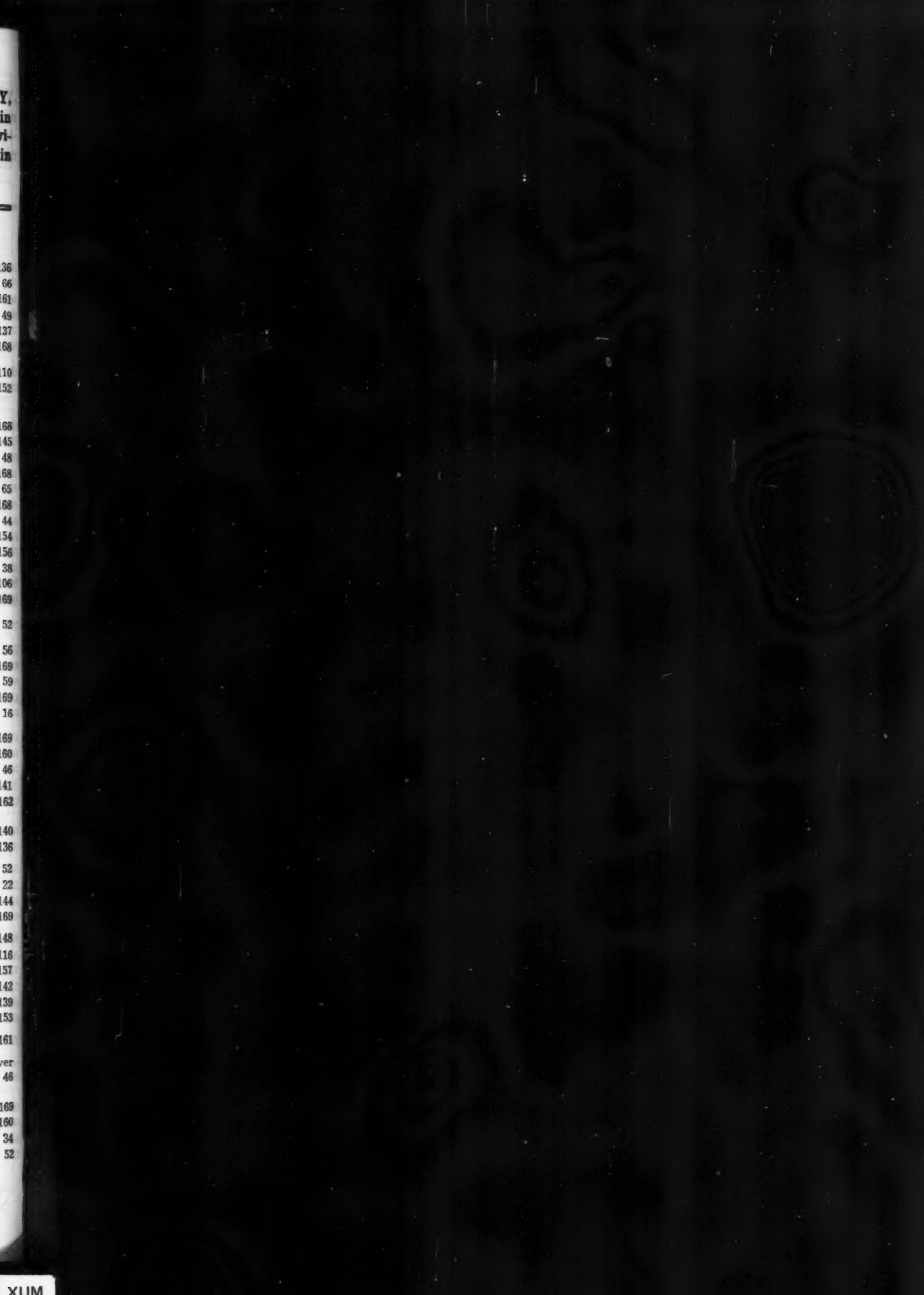

MARCH 1947

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Modern luminaires with 600-candle-power lamps add to the safety and attractiveness of Houston's South Main Street from the Sunken Garden to Bellaire Boulevard.

THE AMERICAN CITY advocates:

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Traffic control for safety and facilitation; modern city transportation—

Adequate parks, parkways, playgrounds, swimming pools, and airports—

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Administrative efficiency and citizenship cooperation in bringing these things to pass.